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News Print Price Fixed at $55.20 F.O.B. Mill

Following Announcement of International Paper Co.'s New Price List, Premier Taschereau Informs Quebec Legislature of Uniform Rates Agreement Entered Into by All News Print Manufacturers—States That Hearst Contract Has Been Rescinded and That New York Publisher Has Agreed to Pay Higher Rate

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 11, 1929.—Premier Taschereau, speaking in the Legislature at Quebec, confirmed the announcement made in these columns last week that the price of news print has been fixed at $55.20 a ton, and he further stated that Randolph Hearst had consented to rescind the contract with the International Paper Company and to pay the higher price.

This announcement follows a week of uncertainty, during which time the International Paper Company issued its new price list. While Canadian news print executives declined to make any statement whatever, or even to comment on the action of the International Paper Company, newspaper reports stating that certain newspaper executives in this city appeared to be "embarrassed" when asked for a statement .

Premier Taschereau's statement of the prices is taken to accord with the pricelist of the International Paper Company, and to mean that $55.20 will be the net price at the mill.

The new prices announced by the International Paper Company are figured according to location and competition, and are f.o.b. the mill, with freight to destination allowed. They are as follows:

New England, except southwestern Connecticut, $61.50; northern New York, generally $61.50; southeastern New York including New York city, $62. Southwestern Connecticut, New Jersey, Delaware, eastern Maryland, including the district of Columbia, Pennsylvania, Ohio, Indiana (generally) all $62. Central Illinois including St. Louis, Missouri, $63. Southern Illinois, $64.

It is estimated that these prices will allow a net of $55.20.

There are some points in the situation, however, which are still not clear. According to despatches from New York, the International Paper Company is reported to have made it clear that the contract entered into with the Hearst publications last fall, to which exception was taken by the bulk of Canadian paper manufacturers, still stands. This price was reported to be $50 per ton.

Premier Taschereau makes the definite statement that this contract has been rescinded, and that Hearst has agreed to pay the higher prices. What is clear, however, is that the International Paper Company's contract with the Hearst publications is for a term of five years, "with no rebates or commissions either directly or indirectly." The general inference from this is that Hearst has made a good bargain, and that in return for paying a higher price he has secured a contract that will shield him for five years from any higher price than a net of $55.20 to the mills. If this is correct, then it dispels any hope of low-priced news print being a temporary affair for none of the companies can hope to return to a higher price during that time on any of their contracts.

Mr. Taschereau is inclined to view the situation with optimism, for he says that but for the agreement arrived at news print would have sold at $50 a ton, with danger of the price dropping to $48. He says the agreement means another $15,000,000 for Quebec Province, and if this is correct it also means that for an equivalent tonnage in 1929 Canadian mills will receive $15,000,000 less than they did last year.

The most constructive feature of the situation appears to be the agreement to pool orders so that the mills can all operate in a fixed ratio to capacity, though at the present time some mills are still reported to be operating at capacity while others are operating at much below capacity. The situation in this respect is a peculiarly delicate one to handle and will probably become more so when new mills now in course of construction come into operation.

Traschereau Defends International Co.

Premier Taschereau's statement, quoted above, came in the course of a debate in the Legislature in which the International Paper Company was the target of criticism by the Opposition, a regular proceeding at this session. There was a bill before the House to provide a fixed valuation of the company's property in the township of Low at $550,000. The ratepayers approved the commutation, and made it for a period of twenty years. The Private Bills Committee made it for a term of ten years.

To this Aime Guertin, Opposition member for Hull, objected, saying the Gatineau Power Company was a subsidiary of the Canadian International Paper Company, did no good to the district, and exported the power developed at Paugan Falls to the Ontario Hydro-Electric Commission, which, in turn, sent it to the United States. Maurice Duplessis objected also, saying that, due to the fact that the interests of the company were heavier in the way of electric developments than in paper mills, the International Paper Company was able today to adopt an attitude which brought on a news print crisis. To approve of commutation of taxes in favor of the company was to strengthen the attitude of the company in the matter of resisting the demand for an arrangement in the news print crisis.

Premier Taschereau, replying, said: "I can tell the member for Hull that the paper crisis is settled, and settled because of the intervention of the governments of the provinces of Quebec and Ontario," he declared. "I may also inform the member for Hull, since he takes such a keen interest in the matter, that the settlement means another $15,000,000 for this province. When the crisis commenced, and the price of paper dropped, the governments concerned took the matter in hand. An arrangement has

(*Continued on page 34*)

Demand for Paper Improving in Philadelphia

Volume of Paper Consumed in First Two Months of Year Was Slightly Higher Than in Corresponding Period of 1928—Adjustment of Prices on Standard Grades Apparently Denotes That Paper Industry Has At Last Turned the Corner

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 11, 1929.—Though the paper industry celebrated the inauguration of President Hoover in a befitting manner during the past week with a much improved demand that indicated confidence in the new chief executive of the nation, it also had another bright angle in the summary of the first two months' business and the reports of slightly higher volume of paper consumption within that time over the same period of the preceding year. From several large and nationally prominent mills announcements were made last week of price adjustments to the sounder basis on which the trade may depend for fairer profits in the coming weeks and possibly throughout the remainder of the year as business grows in proportion to the restored confidence of the industrial world generally. At any rate, it is quite sure that the paper industry has turned the corner on the standard grades of stocks and that the few remaining weak spots in the paper board and its allied converting lines will soon be eliminated.

Local dealers were notified last Tuesday that krafts have been adjusted by an additional cost of $10 per ton or ½ cent per pound and the entire kraft situation is now stronger than it has been since early last Fall with prices nearer the higher quotations prevailing at that time. As these grades of paper were elevated the price of gray bogus was also advanced $2 per ton. These adjustments were in line with soaring prices on bags as the bag markets became steadier on the rising values of 10 per cent which were made in February after a zestful contest among local manufacturers with considerable prices concessions wherever orders were obtainable. Grocery bags particularly are much stronger than they have been for several months and the 10 per cent advance covers the loss which came in the wake of the competition in the early winter months, which held until the present adjustment. Buildings papers are moving in greater volume as springlike weather appears and the contractors are preparing for outdoor construction. Paper boards continue weak, chip being quoted from $36 to $40 while news is still around $38 to $42. Conditions in the board converting industries such as the box making trades are said to be similar to those in the mill end of the business. There is keen competition among box makers with a fair amount of orders garnered at the low levels made possible by the reductions in the cost of the board content.

Wholesale Waste Merchants Annual Banquet

In the 24th Annual Banquet of the Philadelphia Waste Merchants Association the closer relationship and amity existing between the mills and the allied industries in the waste trade in these days of keen competition was clearly evident in the large attendance of paper manufacturers who joined in the festivities of the evening March 5 at the Hotel Lorraine, Broad street and Fairmount avenue. Among the 300 associates who attended this yearly gathering of the local wholesalers of paper stock and other waste materials there was a generous representation of mill owners who journeyed here to join in the evening's entertainment of a fillet mignon dinner followed by a wide and diversified program of vaudeville. Music and sixteen acts of vaudeville interspersed the sociability of the banquet board until the midnight gong brought the program to an end. President Thomas A. Kenny, of the Philadelphia association, welcomed the guests, and in a hearty word of greeting expressed his appreciation and that of the membership for the splendid representation of associates who had braved the stormy evening to celebrate in annual reunion with their fellows on this occasion. He was followed by Edward Corner, of Corner & Co. with a prayer of blessing and thanksgiving. Secretary William J. McGarity also joined in the welcome extended by the local organization. During the dinner hour tiny bells were distributed by the Economy Baler Company, manufacturers of paper balers, 5th and Arch streets, Philadelphia. Those who arranged the program as members of the banquet committee were William J. McGarity, Jr., William L. Simmons, Jr., and George H. French.

Twine Talks For Paper and Cordage Association

Following out its program for a series of talks of an educational value on twines and cords, the Philadelphia Paper and Cordage Association will at its monthly meeting, to be held March 15, give the second of these interesting discussions at the Benjamin Franklin Hotel at the lunch hour. The speaker is Byron C. Clark, district manager for the American Manufacturing Company, Water and Wolf streets, producers of twines and cordage. He will give a technical treatise on "Soft Fibers versus Hard" which will supplement the talk given at the February session by Harry Hamscher, Jr., of the Edwin H. Fitler Company, whose subject was "Hard Fibers versus Soft." These talks are featured in a practical lesson through various samples of twines which are analyzed as the ingredients under discussion are brought out. Open forum questions are permissible for members. In order to more clearly define the activities of the association and to enlarge its field in the trade and its welfare the organization is now known as the Philadelphia Paper and Twine Association and is the only body which is devoted to the associated efforts of twine merchants and manufacturers in this section. Recently several new members among the twine industry have been added, including the Schlicter Jute Cordage Company, manufacturers, of Philadelphia; Morice Jute Mill, manufacturers, Philadelphia; C. Moore & Co., the oldest twine jobbers in the Quaker City; Grady Travers Company, New York City, and the J. L. N. Smythe Company, Philadelphia paper and twine merchants. There are 25 firms in the association, representing 90 per cent of the industry, and attendance at the meetings has been almost full quota at each session monthly.

J. L. N. Smythe Co. Adds Mulch Papers

The J. L. N. Smythe Company, 30 South 6th street, has extended its line of wrapping papers and specialties to include a line of mulch papers used for agricultural purposes made by the International Paper Company under the Gator-Hide Brand. The Smythe company has been appointed by the International company distributors for Eastern Pennsylvania, Southern New Jersey, Delaware and Northern Maryland, and has been meeting with excellent success in the introduction of the Gator Hide to the farmers through appointed dealers under its jurisdiction in the territories designated. The dealers are soliciting direct from the farmers and nurserymen who are now looking ahead to the growing season. The Gator Hide Mulch Paper is produced by the International company under eighteen different patents and comes in two thicknesses of Type A and Type B, the former used for annual crops and the latter for perennials, both promoting growth through retaining moisture and heat and keeping the soil loose and pliable while growth is in progress. The Smythe company is keeping a well stocked department for mulch papers so that speedy service may be available to the dealers in the territories fed through its distributive channels.

Paper Association Reports On Convention

Both fine paper and wrapping paper divisions of the Philadelphia Paper Trade Association met during the week to discuss the

activities of the national convention and to hear the reports of the delegates from the local body. At the wrapping paper division session held in the Bourse Restaurant last Wednesday, the associates heard T. H. B. Smythe, of the J. L. N. Smythe Company, review the meetings of the wrapping paper branch of the national association with reference to the excellent work of the survey committee throughout the year and its achievements in the way of helpfulness to the industry and those linked with the membership of the national organization. Leon Beck, of the Charles Beck Paper Company, gave an account of the fine paper activities with similar compliments to the survey committee and its accomplishment for his branch of the trade. President Simon Walter, who returned from Florida last week, presided at the wrapping paper session, expressing his regret at not being able to attend the national association meeting, told the dealers that from the reports given by Mr. Smythe, the industry had been much benefitted by the constructive plans for the coming year and already had begun to feel the improved situation which is the outcome of the work accomplished. This, he said, was evidenced in the steadier tone of the paper market since the Metropolitan gathering and the gradually rising demand for paper which the stronger tone had promoted through confidence among buyers that the industry had turned the corner for betterment. Vice President W. S. Wilcox, who presided at the fine paper session, expressed his views along similar lines and gave a survey of the entire activities of the national convention, as made in his personal attendance at the New York gathering. He stressed the marked improvement which had set in since the convention and went at length into the details of the work done during the past year and the plans mapped out for future constructive programs.

Charles McDowell In Florida

Charles McDowell, head of the McDowell Paper Mills, leaves this week for a three weeks' sail along the Florida Coast and a sojourn in the southern resorts. He will be the guest of Charles Eisenlohr on his yacht the *Miramar* during his stay in the south, devoting his time to fishing and other vacation pastimes.

Ships Paper Testing Apparatus Abroad

WATERTOWN, N. Y., March 11, 1929.—During the past week the Williams Apparatus Company of this city shipped two large paper moisture testing machines to South America, one being consigned to the Bates Valve Bag Corporation at Buenos Aires, and the other to a factory of the same firm in Brazil. Within the next week the Williams Company will ship a moisture tester to Norway and a similar machine to the Goznak Company at Leningrad, Russia. The apparatus being sent to Russia is used for determining the freeness of any kind of stock used in paper manufacturing. The Williams Company is now operating its plant on Park Place at capacity and is using all manufacturing space available in meeting the rapidly increasing demand for its products. A considerable portion of the output of the local plant is being shipped to foreign countries and this business has shown a large increase during the past several months. The local firm has also gained quite a reputation in the technical end of the paper industry and now supplies many delicate instruments and assembled apparatus.

International Advances Kraft Paper Price

International Paper Company has advanced the price of kraft paper, effective immediately, from $75 a ton to $85 a ton, an increase of $10 a ton. The company has a capacity of 225,000 tons of kraft paper a year and is the largest manufacturer of this grade of paper in the world.

In Southern United States the company has kraft paper mills at Bastrop, La.; Camden, Ark.; and at Moss Point, Miss., and has another mill under construction at Mobile, Ala. In the north the company has kraft paper mills at Rumford Falls, Me., and at Oconto Falls and Marinette, Wis.

Box Board Production for January

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 12, 1929.—January production of box board, based on reports to the Department of Commerce by 93 firms operating 120 plants (reports for earlier months including four concerns now out of business) was 86.1 per cent of capacity, as compared with 71.2 per cent in December and 74.6 per cent in January, 1928. In the following table the capacity data vary according to the normal number of working days in each month:

Year and Month	Operation: Inch hours: Capacity	Operation: Inch hours: Operated	Operation: Per cent of Capacity	Production: Short Tons: Capacity	Production: Short Tons: Output	Production: Per cent of Capacity	New Orders: Short Tons	Unfilled Orders (end of month): Short Tons
1928								
Jan.	10,372,900	7,833,458	75.5	273,125	203,882	74.6	204,128	80,417
Feb.	10,372,900	8,136,737	78.4	273,125	211,862	77.6	215,333	85,862
March	11,312,244	8,843,542	78.2	297,108	227,344	76.5	244,871	93,380
April	10,474,300	8,311,710	79.4	275,100	221,079	80.4	211,304	84,513
May	10,893,272	8,733,965	80.2	286,104	242,394	84.7	224,366	73,157
June	10,893,272	8,199,515	75.3	286,104	228,646	79.9	228,252	77,782
July	10,474,300	7,992,170	76.3	275,100	201,153	73.1	209,976	79,492
Aug.	11,312,244	9,236,068	81.6	297,108	230,750	77.7	236,682	81,816
Sept.	10,055,328	8,344,464	83.0	264,096	224,971	85.2	234,449	87,097
Oct.	11,384,820	9,365,352	82.3	299,052	243,794	81.5	240,391	81,022
Nov.	10,541,500	8,666,458	82.2	287,976	241,924	84.0	248,147	93,203
Dec.	10,541,500	7,631,500	72.4	287,976	205,046	71.2	197,148	94,174
Total (year)	128,628,580	101,294,939	78.7	3,401,974	2,682,845	78.9	2,965,047	.....
1929								
Jan.	10,541,500	8,958,316	85.0	287,976	247,962	86.1	237,095	83,661

Year and Month	Shipments of boxboard: Short Tons	Stocks of boxboard, end of month: Short Tons	Consumption of waste paper: Capacity: Short Tons	Consumption of waste paper: Consumed: Short Tons	Per cent of Capacity	Stocks of waste paper, end of month: At plants: Short Tons	Stocks of waste paper, end of month: In transit and unshipped purchases: Short Tons
1928							
January	196,984	49,032	255,225	189,744	74.3	153,747	62,181
February	209,477	50,350	255,225	193,966	76.0	140,104	60,038
March	237,621	40,439	276,966	209,649	75.7	139,255	47,322
April	220,315	40,319	256,450	211,898	82.6	132,621	47,551
May	235,794	49,107	266,708	220,750	82.8	127,217	46,375
June	223,901	53,560	266,708	204,468	76.7	130,484	43,480
July	203,741	49,969	256,450	190,810	74.4	132,265	62,056
August	233,104	47,709	276,966	213,626	77.1	117,009	48,108
September	228,880	45,271	246,192	217,361	88.3	116,197	53,344
October	245,133	43,627	289,440	240,930	83.2	127,989	73,235
November	235,228	47,693	268,000	222,693	83.1	136,100	49,982
December	197,029	55,624	268,000	196,164	73.2	148,906	43,447
Total (year)	2,667,207	.....	3,182,330	2,512,059	78.9	.....	.....
1929							
January	247,085	56,994	268,000	230,738	86.1	135,392	49,304

Buys Provincial Paper Sales

A business deal of considerable importance has just been consumated, whereby a newly organized company, known as Mid-West Paper Sales Limited, has purchased the business of Provincial Paper Sales Limited, wholesale paper merchants with ranches at Winnipeg, Calgary and Edmonton.

For some three years past the control of Provincial Paper Sales Limited has been in the hands of Eastern Canadian interests, and the business again comes into the ownership of Western men, and those who have been active in the direction of the affairs of the business during the past number of years.

The new company will continue to operate as at present, and it is interesting to note that they are now occupying their new Winnipeg warehouse at 319 Elgin avenue purchased recently from the Scott estate. The Winnipeg warehouse is one of the best equipped warehouse buildings in Winnipeg and is splendidly adapted to the needs of the wholesale paper business.

The personnel of the new company are all well known to the printing, wholesale and retail trade throughout the provinces of Manitoba, Saskatchewan and Alberta.

A. Clarke Hunt, who has been general manager of Provincial Paper Sales Limited, becomes president and general manager of the new company. The remaining officers are Herbert B. Kirby, vice-president and sales manager; Thomas Underwood, second vice-president; Richard Hillier, treasurer; Gilbert Garnett, secretary; Peter Christie, manager, Coarse Paper Division; W. J. Thompson, manager at Calgary and George Hatch, Manager at Edmonton.

Fort Howard Paper Co. Plans Improvements

Increased Power Facilities to be Provided At Green Bay Plant Through Installation of 1,500 Kilowatt G. E. Steam Turbo-Generator In New Power House Now Under Construction—Material Reductions In Operating Costs Will Result

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 11, 1929.—Improved power facilities are to be provided soon at the Fort Howard Paper Company, Green Bay, Wis., through installation of a 1,500-kilowatt General Electric steam turbo-generator in a new power house now under construction. The company recently finished a new boiler house and equipment, and this is the last step in changing to more efficient and economical motivation.

About $150,000 will be spent on the power house and equipment. The walls of the building are nearly completed and the structure soon will be under roof. It is 30 by 50 feet in size, and two stories high.

The turbo-generator will be located on the second floor of the building, leaving the first floor and basement for the condensers and other auxiliary machinery. Enough current will be produced to operate the mill's two paper machines, both to be equipped with direct electric drives, and the other machinery and lights.

Future expansion was borne in mind in planning the improvements. The boiler equipment, while supplying only the one turbine, is ample for two. The power house is so arranged that another turbo-generator of 2,500 kilowatt capacity can be installed later.

The installation is arranged for use of the exhaust system which permits the steam to be "bled off" at low pressure for heating of the drums on the paper machine. Steam will enter the turbines at a pressure of 325 pounds and will go to the heaters at 30 pounds. Material reductions in operating costs will result, according to A. E. Cofrin, general manager. Construction work is being done by H. J. Selmer Company, and the engineering work by W. L. Fergus Company, of Chicago.

De Pere Power Dam Completed

Completion of the power dam on the Fox River at De Pere, Wis., will take place this summer, according to plans now being made by the United States engineering department. Congress has appropriated $100,000 for the work. About half of the dam was rebuilt last summer, with concrete work and steel gates replacing the wooden construction installed many years ago. The remaining walls and abutments will be built this summer, so the dam will be strictly modern. It is one of the largest on the river, at a point where several large paper mills are located. The government also will spend $55,000 for improvements at other power points on the river.

Nekoosa-Edwards Forestry Plans

Methods by which the Nekoosa-Edwards Paper Company will supply all of its pulp wood from its own home grown forests were explained by F. G. Kilp, chief forester of the company, in an address recently before the annual convention of the Engineering Society of Wisconsin. New Forests will be created sufficiently to keep both of the larger mills running night and day, meaning a yearly sustainable yield of over 100,000 cords. Trees planted are jack, Norway and white pines, and it is expected that by 1930 the nursery will provide 3,000,000 two year old seedlings annually for transplanting. The progress has been quite satisfactory, the survival of young trees averaging from 83 to 95 per cent. By constantly improving the methods of planting and culture, the average cost of reforestation has been cut as low as $4.18 per acre. The company already has a large acreage started and will continue to plant cutover lands from year to year so that there will be a perpetual supply from the time the first cutting takes place.

E. P. Gleason, head of the engineering department of the company, also spoke at the convention. His subject was "Power Plant Metering Equipment and Automatic Combustion Control."

News of the Industry

Final arrangements have been made by the forestry department at Washington, D. C., to locate the Lake States Forestry district office at Milwaukee, Wis., instead of Madison, Wis., according to a decision of R. Y. Stuart, national forester. The lack of space in the federal building of the latter city caused the change in plans. The new district was created to carry on reforestation and fire prevention work in Wisconsin, Minnesota and Michigan.

Seventy-five executives and employees of the Marinette and Menominee Paper Company, Marinette, Wis., enjoyed a banquet last week at the windup of classes held weekly during the winter in foremanship training. Several speakers reviewed the accomplishments of a course of this kind, including W. W. Hinnenthal, general manager. He declared that the course has built a better organization, has added to the quality of the output and has assisted in cutting costs. It has increased specialization and has given the men a better chance for their own success. Mr. Hinnenthal also declared that the outlook for business is very favorable for the first six months of 1929, especially since the company began making a new machine-glazed sulphite paper and improved the regular grades. The latter half of the year may not be as promising, he said. M. W. Smith, instructor of the classes, G. W. Schefelker, director of the Marinette Vocational school, and other representatives of the mill also were on the program.

Water power interests all over the state are watching river conditions closely in order to prevent ice jams and damage to dams and turbines. Wisconsin has had the largest snowfall in many years and a sudden thaw will cause a dangerously high level. Sluicing of the streams is being done wherever possible to allow for the spring rush. Damage will result only if there is a sudden turn to warm weather. Thus far the days have been mild and the nights cold so that the snow has been disappearing gradually. Conferences have been held by paper mill owners in several localities to make arrangements for any emergency.

To Buy Mack Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., March 2, 1929.—The Black River Paper Company, controlled by Allen S. Perkins, has completed negotiations for the purchase of the Mack Paper Company which is rated as one of the oldest established paper jobbing concerns in Northern New York. The company in the past several years has absorbed a number of competitive concerns and the deal for taking over the business of the Mack Company has been hanging fire for some time. The business of the Mack Company has been operated under direction of Norman Mack since the death of his father, C. A. Mack. The companies taken over by Mr. Perkins since he entered the field in 1919 include the Black River Paper Company, D. S. Miller Company, Watertown Supply Company, M. M. Bagg, and the Mack Paper Company. Other expansion plans of a vast nature are planned by the company in the near future.

Several weeks ago the portion of the Babcock plant occupied by the Black River Paper Company was sold to Abe Cooper of Syracuse, but arrangements have been made to continue business in the present establishment. The company has taken over a long term lease of the plant which guarantees that it will spend at least ten years in the present location. The company now has one of the finest and best equipped paper houses in the country and recent remodeling allows it the ability to provide better service.

There are rolls in your mill that it will pay you to keep always in perfect condition with

The Vickery Doctor

Are you willing to be shown?

BIRD MACHINE COMPANY

South Walpole Massachusetts

2672

Paper Business Fairly Satisfactory in Chicago

All Grades of Wrapping Paper Are Moving More Rapidly Than of Late—Fine Paper Continues In Moderately Active Request, With Prices Generally Steady—Demand for Tissues Improving With Approach of Spring—Paper Stock More Buoyant

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 11, 1929.—A touch of spring weather has had its effect in the Chicago paper market and as the Easter season comes on practically all of the lines are experiencing fair business. Noteworthy in the reports from sales offices is the news that the news print situation is fast becoming stabilized and the information printed in various national publications throughout the past week seems to have had a good effect on the market here.

The wrapping paper lines are going into the midst of their second busiest season, the first being the holiday period and the second being the Easter dates on the calendar. All lines of wrapping paper are beginning to move more rapidly with a cheerful outlook ahead. A fair volume of fine paper is being sold with the prices firm, according to reports. Tissues have improved as spring comes in while there is a good report also to be had from the book lines with a moderate demand and firm prices in effect. Board is improving with prices expected to be better soon. The waste paper market is better with nearly all lines in good demand in the lower grades. Book is about the most popular of the lot.

Waste Material Convention Plans

One of the important events of the coming week in Chicago as far as the paper market is concerned is the annual meeting of the National Waste Material Dealers, Inc. It is to be the sixteenth annual meeting of the association, at which time a president and fifteen directors will be elected on Wednesday, March 20 at 2 p.m. All meetings, including the Annual Banquet, are scheduled for the Congress Hotel.

The annual meeting is being held this year for the first time outside of New York City, and a representative attendance from every section is expected for the two day meeting beginning March 19. Two of the meetings, that of the Waste Paper Division on Wednesday morning, March 20, at 10 o'clock and of the Paper Stock Division on the same date and an hour later, are of unusual interest to Chicago paper merchants dealing in waste paper and paper stock. The committee on arrangements for the Annual Banquet, to be held on the evening of Wednesday, March 20, in the Gold Room of the Congress, also includes a number of Chicago paper merchants and though complete plans for the banquet have not been made public those present are assured of some interesting entertainment to be provided by the Chicago contingent.

The meeting of the Waste Paper Division will be under the supervision of the chairman of that division, Robert Graham. The Paper Stock division meeting will be presided over by David Charak, chairman, and matters of interest to dealers in paper mill supplies other than waste paper will be considered.

The report of the nominating committee includes the names of three Chicago men who will be up for election as directors for the two year period. These names include E. B. Friedlander, the Lowenthal Company; W. J. Ross, Hyman-Michaels Company, and J. V. Spachner, of the Chicago Mill Paper Stock Company.

Paperboard Industries Meeting Program

From the headquarters of the Paperboard Industries Association, 608 South Dearborn street, Chicago, comes the complete program of the next meeting to be held at the Commodore Hotel, New York City, March 20 and 21. All meetings will be held in the West Ball Room of the Hotel. The Folding Box Group will meet from 10 a.m. to 12:30 p.m. on Wednesday, March 20, followed by the Paperboard Group meeting from 2 to 4 in the afternoon of the same day. The Container Group convenes on the morning of Thursday, March 21, while a noon luncheon for all members will be held immediately following. A meeting of the three groups in joint session is scheduled for Thursday afternoon from 1:45 to 4:15 o'clock. All time shown is Eastern Standard Time.

Preceding the regularly scheduled meetings by one day an important meeting for the members of the Paperboard, Container and Folding Box Groups is to be held at 10 a.m. Tuesday, March 19, at which time the decision of the Federal Trade Commission on the Trade Practices submitted will be discussed.

The Central Plan Committee, appointed by the Executive Committee of the Paperboard Industries Association, has prepared a plan and is ready to submit the same to the entire industry. As it stands, this plan may be administered in two ways—either by the present organization of the Paperboard Industries and its staff or by a separate organization of the paperboard and box industry outside of the Paperboard Industries Association and headed by some one of national prominence to be known as General Counsel.

Other items to be discussed during the three days of the meeting will be the meeting of mill operators with the Secretary of Labor at Washington, D. C., on February 5 and the report of tariff hearings held at Washington on February 13.

Salesmen to Hold Annual Dinner

The Annual Salesmen's Dinner of the Chicago Paper Association is scheduled for March 12 at 6:30 o'clock in the Red Lacquer Room of the Palmer House. This annual gathering which provides a good fellowship feast for over 300 salesmen and executives of member organizations promises to be the most entertaining and educational of any yet held. Much of the evening will be given over to good entertainment and the provoking of convivial spirits but the dinner will also provide a choice selection of speakers. Chief among these is Leo S. Altholz, president of the association, and a strong speaker with a very interesting way of getting his message across. Jacob Logan Fox, attorney for the association, is to speak on "The Legal Side of Selling."

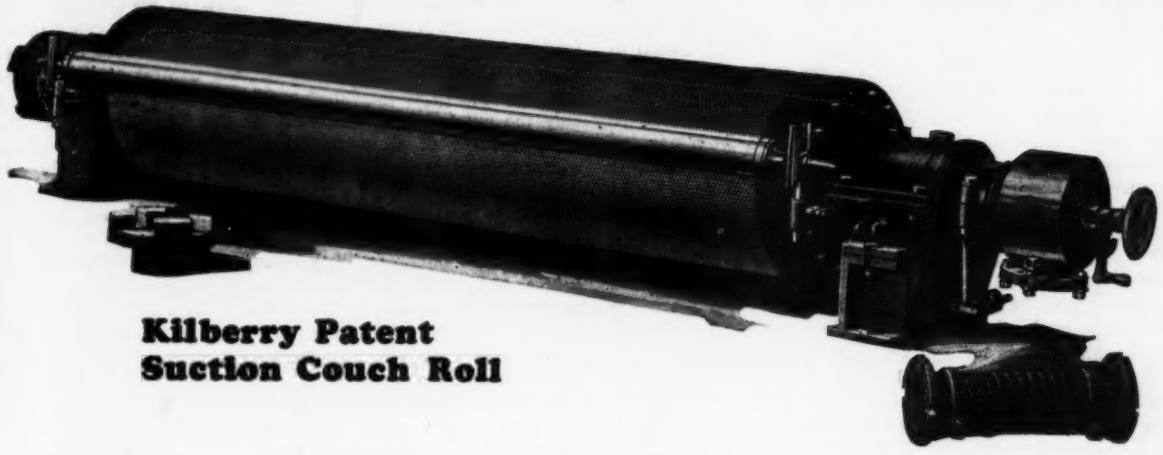
Another feature of the program will be an address by O. Rosenthal, a builder and architect of some prominence, who will talk on the subject of "Building in Business." The large audience expected will be cordially entertained.

A. S. Allen to Address Salesmen

Arthur S. Allen, chairman of a committee on the Standardization of Process Colors, is to be the main speaker at the Monday noon meeting of the Chicago Division of the Salesmen's Association of the Paper Industry, March 25, at the Hamilton Club Mr. Allen has already spoken at the annual business meeting of the association and members are well aware of the high position he holds in his field. The committee of which Mr. Allen is chairman, is composed of the following organizations—the American Institute of Graphic Arts, Association of Advertising Agencies, Art Directors Club, Association of National Advertisers, National Association of Photo Engravers, United Typothetae of America, Ink Manufacturers Association and the International Association of Printing House Craftsmen.

The important findings of the Committee on the Standardization of Process Colors will probably be published in book form some time in the near future but meanwhile any information on this important subject will be unusually interesting to the Salesmens Association. The work of the committee is so well recognized that 75 high class national publishers including Curtis, McClure, Conde-Nast, Harpers, Hearst, Nations Business, World's Work, and others, have already adopted the plans of the committee.

DOWNINGTOWN Suction Rolls



Kilberry Patent Suction Couch Roll

Partial List of Users:

St. Regis Paper Co.
Frasers, Limited
Mohawk Paper Makers
Calcasieu Paper Co.
Nekoosa-Edwards Co.
Marinette & Menominee
Consolidated Paper Co.
Jessup & Moore Paper Co.
Fort William Paper Co.
Hinde & Dauch Paper Co.
Johns-Manville, Inc.
Deerfield Glassine Co.
Donnaconna Paper Co.
E. B. Eddy Company
Continental Paper & Bag Co.
Laurentide Co., Ltd.
Congoleum Nairn, Inc.
Hummel-Ross Fibre Corp.
Scott Paper Co.
Louisiana Pulp & Paper Co.
National Asbestos Co.
Beaver Wood Products Co.
Price Brothers, Ltd.

Downingtown put the Kilberry Suction Roll on the market as no improvements to the suction rolls in general use, had been made for many years.

Downingtown introduced the small journals and anti-friction bearings now in general use.

Downingtown introduced the direct drive which is a patented feature of our roll, permitting the installation of a suction roll for a plain couch or press roll by coupling direct to the floor drive.

Downingtown introduced a suction roll with a suction box supported by its journals in such a manner that the seal is maintained without adjustment and with a minimum of operating friction.

Downingtown introduced a method of changing the angular position of the suction box by means of an outside adjusting device, while the machine is running.

Downingtown introduced the spiral staggered drilling of the holes in the shell which is a standard feature of our roll, thereby increasing the strength of the shell, preventing the cutting or scoring of the packing and the inside surface of the shell, and reducing the marking of the sheet and prolonging the life of the felt.

Downingtown will introduce other features to maintain our suction rolls as the best that can be built.

Downingtown feels that the Paper Industry has benefited largely thru the above suction roll improvements, which were introduced by us.

Downingtown had to undergo the cost of expensive litigation to prove their right to give the above improvements to the Trade. The United States Court of Appeals in a sweeping decision in our favor gives us this right.

Downingtown builds suction couch rolls and suction press rolls by the centrifugal casting process in all sizes, large and small.

Downingtown solicits your inquiries and an opportunity to serve you.

Our Products Meet Our Promises

DOWNINGTOWN Manufacturing Company Downingtown, Pa., U. S. A.

Paper Demand Gradually Improving in Toronto

Although Conditions Were Rather Quiet During February, the Various Grades of Paper Are Moving In Better Volume So Far This Month—With Orders Coming In More Freely, Manufacturing Activities Are Beginning to Revive

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, March 11, 1929.—While February was a rather quiet month in wholesale paper circles in Ontario, March has opened up somewhat better and gradual improvement is being shown in sales volume. Paper consuming sources are getting busier and a good spring trade is looked for. On the whole the printing industry is consuming a fair amount of paper and there should be gradual improvement in all consuming industries from now on until the summer season sets in. Lithographing establishments are particularly busy and fair requisitions are being made by direct mail advertising, catalog and publishing houses for various classes of fine paper. Wholesalers handling bonds, writings and ledgers report a moderate volume of orders, although total sales during the past few weeks have shown only a small increase over last year's business at the same period. The coarse paper market is inclined to be weak. It is feeling the effects of outside competition, although there is no sign of weakening price lists.

Manufacturing activities are beginning to pick up after a somewhat quiet month or so and orders are commencing to come in now more freely for book, bonds, writings and ledger papers which should ensure operation of the machines to the end of the spring months at least. The year opened with a big reserve of orders ahead of the book paper machines, but these were caught up with to some extent and orders for future delivery are only a few weeks ahead of manufacturing operations. The call for coated stock is gradually improving and the mills are moderately busy, while light weight paper manufacturers report a good volume of business which has been well sustained since the present year opened. There is an excellent demand for napkins, towels, specialties and all light weight paper products generally, while the same conditions obtain in regard to waxing, grease proof and glassine papers, the demand for which is good. Coarse paper manufacturers are operating at slightly under capacity, and with the exception of kraft, coarse paper lines are not moving as rapidly as they should be at this season of the year, due, to some extent, to foreign importations which have been unsettling the home market.

Board mills are slightly less busy than they were a month or so ago and consumers have no difficulty in getting prompt delivery now. The paper box trade continues to make fair requisitions for board and is quite active on spring and summer lines. Since the beginning of the year the box manufacturing industry has been busy and it looks as if that branch of the paper industry is going to have a good spring and probably a good year. No great volume of business is passing in converting lines, although manufacturing stationery firms say there has been some improvement in the outlook and in actual business of late. Envelope manufacturing concerns are fairly active but there is not the volume selling that there should be at this season of the year. Rag and paper stock dealers report a strong market, with good demand for their products from the paper mills, and collections of stock satisfactory as to volume.

Seeks Closer Check-up on Limits

As a result of questions asked by the Liberal leader during the discussion of the proposed pulpwood conservation act in the Legislature this week, the bill failed to pass committee, being held up for various amendments. During the reading of one of the sub-sections, which states that all pulpwood companies must file with the Minister a statement showing the number of limits they are operating, the Liberal leader claimed that the department should already have this information on hand. Replying, the Hon. Mr. Finlayson, Minister of Lands and Forests, said: "That is there for a reason. We want to know of all the grants the companies are working. Some of them have what is called Indian land and some are working lands which have been granted to railway companies, such as the Algoma Central or the Algoma Eastern. The paper companies acquire the right from them to cut only the pulpwood on land held by the Algoma Eastern. We want to know of all cutting that is being done." The clause which states that each company in the province shall file with the department a plan in detail of the method which it would propose as a suitable means of placing the pulpwood supply of Ontario in a position under which the lands would be self-sustaining, continuing on a sustained yield, then fell under the Liberal leader's gaze. "That's rather a large order isn't it?" he asked Mr. Finlayson. "Just what is expected? "There are several companies which have very large grants and which have foresters of their own," replied the Minister. "These foresters and cruisers are expert men and from expert staffs. They have been studying methods of placing the pulpwood supply on a sustained yield basis and we have assisted in many instances by means of aerial photography. We hope that they will propound plans for placing the paper supply in a better condition. Yesterday you probably noticed the several pounds of paper which entered your home, such as in Sunday editions. I am convinced that one of the means of conserving paper will eventually be that some of that paper will have to be cleaned and put back into the machines to make new paper. These things must all be studied and investigated before they can be put into effect." Section five came in for considerable criticism by the Liberal leader. It was stated that the Minister would singly and individually examine the filed statements and from them perfect plans for obtaining relief from the present pulp situation. Mr. Sinclair could see no reason for stating in the act what the Minister was going to do after he obtained the information. "Surely this could be a little more comprehensive," he said, "and a little more like a law. I don't like the looks of it now. It is more like a newspaper story than a law."

Going Back to Work in Russia

It is reported that a number of the former employees of the Fort William Paper Company's plant at Fort William, Ont., which has been idle for several months, are negotiating for employment in a news print paper mill located in Russia, and that preliminary negotiations have been successful. Several of the men will leave the Head of the Lakes shortly, it is stated, to take up their new duties in the far away country. It is understood by them that the rate of wages for machine tenders and other paper makers is approximately 10 per cent higher in Russia than in Canada or the United States.

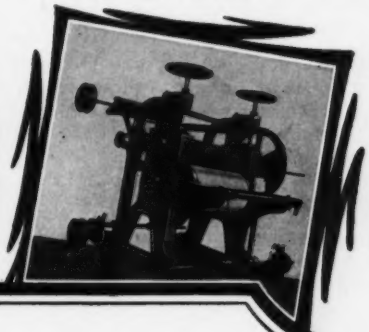
Paper Box Bowlers Wind Up Season

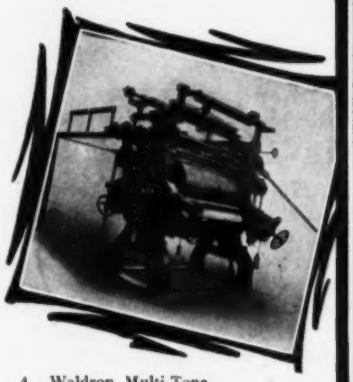
The Toronto Carton Council and Associate Members Bowling League wound up its season's activities on the evening of March 5 when the participants met in the annual banquet at the King Edward Hotel, and, following a dinner, received the prizes awarded to the winners. Bob Gold, and his "Brickbats," were announced as winners of the W. P. Bennett trophy, while J. W. Hewitt, Jr., of Paper Sales, Ltd., topped the list of prize winners. Mr. Hewitt presented the prizes to the runners up, the awards having been donated by paper box and paper houses in Toronto. The second prize was won by Ollie Hutchison, third by Bill Silk, fourth by Ran. Swail, fifth by E. Edmunds and sixth by Luke Morrison. Twenty prizes were awarded all told and considerable

3. Waldron 6 Color Surface Printer.

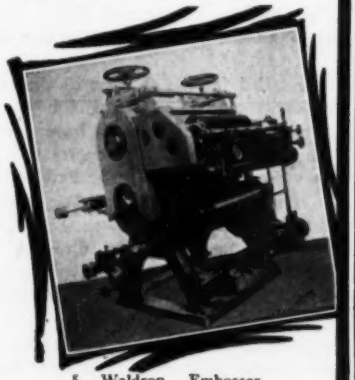
2. Waldron Mechanical Festooning Apparatus.

1. Open Front Embosser with roller bearings.





4. Waldron Multi-Tone Intaglio Printer.



5. Waldron Embosser with Inking Attachment.

Waldron Machinery Will Give You a Greater Share Of The Constantly Expanding Market For Converted Paper

This century old organization of machine building specialists stands ready to assist progressive manufacturers to take full advantage of the new opportunities for greatly increased business. Never before has the future looked so bright for those who are prepared and equipped to meet the increasing demand for Utility Trims and Wraps, Box Papers, Single Purpose Servers, Etc.

You may simply want information on the elements of this expanding market; or advice on improved products and effects that are within range of your present equipment; or expert engineering data concerning necessary new equipment for your plant.

Whatever your requirements, if it is in connection with Paper Converting, use the facilities and service of our Engineering Dept. Write for copy, "Converting of Light Weight Papers."

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208 W. Washington St.

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WALDRON

Paper Converting Machinery

enthusiasm was manifested during their presentation. The gathering was presided over by Robert Dunlop, president of the Canadian Paper Box Manufacturers' Association, and he had charge of a very interesting program of speeches and music, while A. J. Allan, of Paper Sales, Ltd., who has acted as secretary of the League for some years, was presented with a couple of dozen golf balls in acknowledgment of his splendid services. The committee in charge of the affair were Jack Forth, George Reid, Art Merredith and Art Allan.

Pulpwood Operations in the North

The Hawk Lake Lumber Company, Cochrane, Ont., during the past season, took out 50,000 cords of rough pulpwood, 22,000 cords of peeled spruce and 15,000 cords of peeled poplar wood. The company will take out during the coming season a little less spruce pulpwood and a little more peeled poplar wood, so that the aggregate will be about the same as last year. A. E. Wicks, president of the company, says that the market for pulpwood to Canadian mills is steady, but there is not the feeling of optimism or urgency with regard to purchases by United States plants as in some former years. The present winter, so far, has been an excellent one for logging, with not too much snow, clear weather and plenty of frost. The cost of labor and other expenses have been about what operators estimated they would be for this season.

Paper Mill to Resume Operations

D. G. Calvert, general manager of the Fort William Paper Company, Fort William, Ont., has been notified from Montreal to resume operations at the plant, which has been closed down for several months. The larger of the two paper machines will be put into operation at once, and Mr. Calvert says that he expects additional orders shortly which will start the second machine running. All the units of the plant will operate in order to feed the big 85-ton machine, and about 200 men will be taken on at once. Staff reorganization is already under way.

Increased Offerings for Research

The pulp and paper industry and the printing trades are interested in the development of the Research Foundation in Ontario which was brought to the attention of the Ontario Legislature this week, when the Hon. George S. Henry, in the absence of the Premier, introduced an amendment to the Act which provided for the fundation. The Minister explained that last year's provision was that the Province subscribe a million dollars if a million dollars be subscribed by private interests. "There has been so much enthusiasm among those in industry," said he, "that the fund is oversubscribed, and this amendment provides for an increase of the amount up to $2,500,000 on the same terms as last year."

Rolland's Earnings Increase

The financial statement for the first seven months operations of Rolland Paper showed net operating earnings of $258,607, while net earnings for the twelve months operations ended December 31, 1928, were $461,394. This figure compares most favorably with earnings in 1927 of $331,353.

On the basis of full annual bond interest and preferred dividend requirements, depreciation of $40,000, and $13,000 written off for organization expenses, earnings applicable to the common stock were equivalent to approximately $3 a share.

Rolland Paper owns and operates a paper mill at Mont Rolland, Que., having an annual capacity of 5,300 tons of sulphite bond and rag stock paper. In addition to this the company operates a mill at St. Jerome, having an annual capacity of 1,600 tons of high grade rag stock tub sized and loft dried. The new paper machine is being installed at this mill, and the total capacity of the company's plants will be brought up to more than 8,200 tons a year

The present company was formed in June, 1928

Notes and Jottings of the Trade

A visitor to Toronto a few days ago was A. E. H. Fair, general manager of operations for the Windsor Locks Paper Mills at Windsor Locks, Conn. He is a brother of N. B. A. Fair, of the Alliance Paper Mills, Ltd., Toronto, and at one time was superintendent of the Lybster mill of the old Lincoln Pulp and Paper Mills, Ltd., at Merritton, Ont. Mr. Fair became associated with Arthur D. Little, Inc., over a year ago.

Word has reached Toronto of the death of a former well-known paper man of that city, in the person of Wallace Murphy, manager of the Winnipeg branch of the Barber-Ellis Company, who died in the Western city a few days ago. Deceased was widely known in East Canada, where he traveled for the company before going out West.

Rate payers of Thorold, Ont., will shortly vote on the granting of fixed assessment for ten years of $10,000 to the Brantford Felt Roofing Company, of Brantford, which intends to carry on operations in the plant of the Superior Paper Mills, Ltd., which went out of business some months ago.

United Paper Mills, Ltd., Toronto, Hamilton, and London, Ont., have just put out a very attractive folder for distribution by its various branches, under the title "Hurrying Footsteps." It is one of a series, each of which will feature one of the company's covers. The initial folder is on Lodestone Amber and the letter press deals with the necessity of speeding up deliveries, which is possible under the company's system of localized service. It is pointed out that the paper user of today needs to gear up his production department to the urge for quicker and more efficient service.

Witchall & Son, 156 St. Helens avenue, Toronto, has been awarded the contract for the erection on University avenue, Toronto, of the new head office of Provincial Paper, Ltd. The building will be erected to plans by Marani & Lawson, architects, 38 Bloor street West, Toronto.

Clarence E. Jackson, manager of the Thunder Bay Company's plant at Port Arthur, Ont., has resigned that position, in order to return to the Consolidated Water Power and Paper Company, at Wisconsin Rapids, Wis., of which concern the Thunder Bay Company is a subsidiary. W. J. Hussey, formerly manager of the Espanola plant of the Abitibi Power and Paper Company, Ltd., has taken the position of successor to Mr. Jackson at Port Arthur.

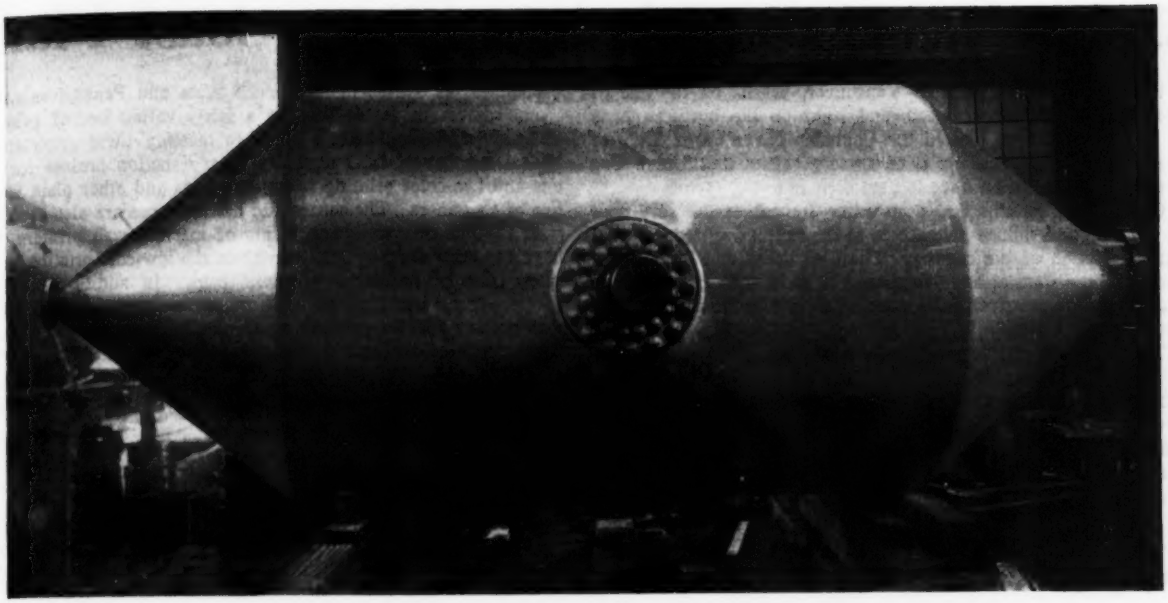
Tenders are about to be called for the erection of the proposed new head office on University avenue, Toronto, for the Abitibi Power and Paper Company. The building will have a frontage on University avenue of 130 feet, while the property will have a depth through to Simcoe street of 128 feet. The building will be in the shape of a T. It is expected that the building, when completed, will house a staff of about seventy-five. L. R. Wilson, vice-president of the company and managing director, W. H. Smith, secretary-treasurer, and the other executive officers, will be located in the new building, which will be three stories in height and of outstanding architecture.

Woods operations of the Laurentide-Ottawa Division of the Canada Power and Paper Comporation have progressed favorably this season and the company is taking out about 35,000,000 feet of bush scale, largely of white pine. The logs will be cut at Pembroke, Ont., by the company operating the mill purchased some time ago from the Edwards Lumber and Pulp Company.

For the purpose of making a study of the various processes of manufacturing paper used in the plants, several students of Queen's University, Kingston, paid a visit to two of the largest industrial establishments in Cornwall, Ont., the Howard Smith Paper Mills and the plant of Courtauld's Ltd.

R. E. Dick Goes With Oxford Paper Co.

Robert E. Dick, a graduate of New York State College of Forestry, Syracuse University, started working with the Research Department of the Oxford Paper Company on February 1. The scope of his work will have to do with problems related to coated paper manufacture. He is stationed in the laboratory of the Maine Coated Division of the Oxford Paper Company at Rumford, Maine.



Kellogg forge and hammer welded rotary digester. For the Crown Willamette Paper Co., Portland, Ore.

Forge and Hammer Welded Digester

26 feet long x 9 feet 9 inches diameter x 1 1-8 inches thick

THE Kellogg Forge and Hammer Welded Rotary Digester shown above is one of three made for the Crown Willamette Paper Co., Portland, Ore. It is furnished complete with charging nozzle and cover, discharge nozzle, cast steel trunnions, steam connections, and complete driving mechanism.

Among other Kellogg installations on the Pacific Coast are:

Cascade Pulp & Paper Co. . . . . 3 digesters
National Paper Products Co. . . . . 6 digesters

All Kellogg Digesters conform to the specifications of the unfired pressure vessel section of the A.S.M.E. Boiler Construction Code.

THE M. W. KELLOGG COMPANY, 225 BROADWAY, NEW YORK

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POWER PLANT PIPING..FORGE WELDED PIPE..BOILER DRUMS..HEADERS
RECEIVERS..SEPARATORS..FLANGED JOINTS..AUTOCLAVES..DIGESTERS

ALL KELLOGG FORGE AND HAMMER WELDED PRODUCTS ARE INSURABLE

Union Bag & Paper's New Pacific Coast Plant

Rather east of the town of Vancouver, Wash., on the line of the Northern Pacific Railroad, and right on the northern bank of the Columbia, are located the Columbia River Paper Mills of the Ledbetter interests. It is on these premises that Union Bag and Paper Corporation have located their new bag factory.

Ocean-going bottoms find deep water dockage at the very door of the mill, and sidings give access to the railroad systems of that general section of the country. The high speed and low cost of access to the Coastal and Mountain States implied by a location like this are impressive in the extreme, as any traffic manager will appreciate.

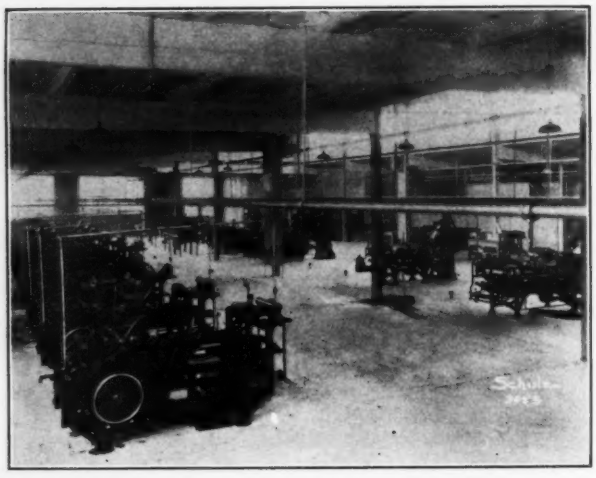
The source of the paper for the new bag factory will be the mills on whose property the factory is erected. The kraft paper, moreover, is being made of the Tacoma pulp of the corporation's new mill at that point, and is fully up to the high standards elsewhere established by Union kraft paper. In addition to kraft, the Columbia Paper Mills will supply any number of kraft and sulphite specialties, including enamel, striped, colored and similar lines.

Varied Equipment Installed

The factory is equipped with the most varied equipment so far placed by Union Bag and Paper Corporation in a new or "extension" unit—the practice usually being to begin with a small quota of grocery bag machines and to build into other lines as recognition and demand call for.

The regular lines of Union grocery bags will, of course, be the first concern of this factory as of all other Union units. The Automatic shape will include the Tiger, Lion and Antelope grades, in the famous "Not-a-Seam" perfection of formation. The Squares will start with Banner, Hemp and Acme. There will even be an export grade (Habana Standard) for the Costa Rican trade, going thither by coasting steamers.

Odd bags in the Auto, Square, Flat and Satchel Bottom shapes



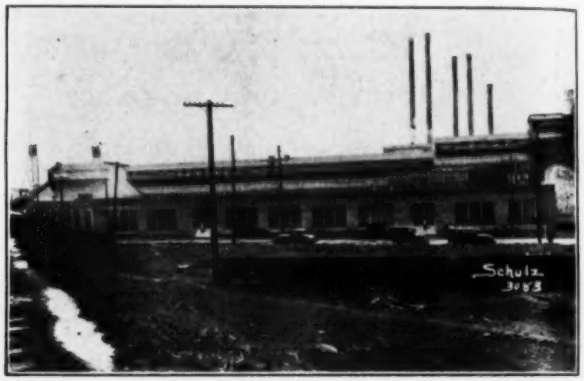
INTERIOR VIEW UNION BAG PLANT

will be fully represented—Elephant Sugar Auto, Candy, Notion, Millinery, Banana, and Nail Bags, Flour and Poultry Sacks, etc. The "Union" catalogue has always been a lengthy one.

Many of the automatic and satchel bottom machines are fitted with duplex parts and the Union compensator—so that the making of the Union fancy lines of Duplex coffee bags and Duplex flour sacks is clearly indicated in the company's plans. Merchants in the far western markets have long been heavy buyers of these goods especially, and it will be welcome news to them to learn that they can now have them with much the same freshness and promptness as houses in New York State and Pennsylvania.

The above equipment assumes a fairly varied line of printing facilities—and the Union people are meeting these expectations with a number of their exclusive rotary suction presses for the one and two-color printing of grocery bags and other plain varieties of containers. The square and flat machines are also equipped with the one and two-color forms of machine-web printers that have for years done yeoman service in the low-cost printing of so many lines of regular and special bags. In addition to these presses, there will also be some of the exclusive Union rotary web presses for the printing of Duplex coffee bags and Duplex flour sacks—up to three colors (or two colors-and-gold) at one revolution.

With such a line of machinery and with their well known skilled



NEW UNION BAG PLANT

workmen to operate them, it seems that the company are here fitted also to engage in the designing and manufacture of the myriads of wholly special, or made-to-order, lines of bags on which this house has for years held a unique position. It is a far cry from Hudson Falls, N. Y., to Vancouver, Wash., but the long lines of the country-wide "Union" organization seem to be making little or nothing of the miles.

W. W. Griffith, who has the unique record of having held responsible positions in both the operating and sales ends of the corporation's work, will function as business manager of all the company's interests on the Pacific Slope, having in his charge the general supervision of operation of the Tacoma Pulp Mill, the Vancouver factory, and the selling-force, with offices at Tacoma.

G. S. Brenzel, who was formerly connected with Union's factory at Kaukauna, Wis., will be resident manager at Vancouver; and V. H. Murchie, who was superintendent of the Union Bag Factory at Kaukauna, and whose father was one of the pioneers and inventors in paper bag machinery, will be general superintendent at Vancouver.

Complete Reforestation Program

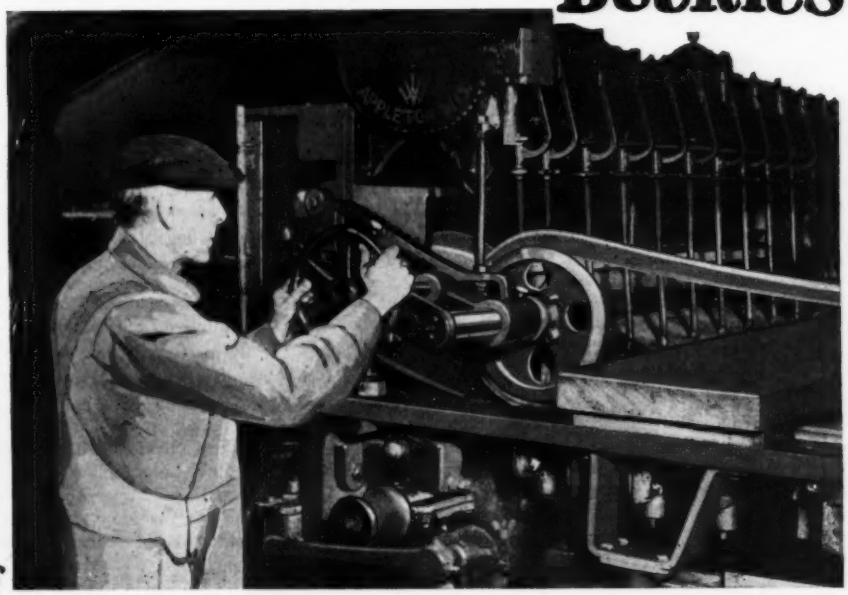
PORTLAND, Ore., March 1, 1929.—The Crown-Willamette Company which has been carrying on a most comprehensive reforestation program in the Pacific Northwest the past few years, has just completed forestry operations in the area around Seaside, Oregon, for this year, according to C. J. Vincent, who was in charge of this phase of the work.

There is a probability that the company will continue some work in the Young's River Falls area as they have about 150,000 trees to plant there yet. The extremely cold weather in the Willamette Valley in January where the nursery stock is located froze up the young trees so that they could not be moved until a thaw.

NOW - without stopping the machine You Can Change Deckles

with the 1929 VOITH INLET.

One of its Exclusive Features



To those mills that are required to change deckles frequently, here is an important development now available at a small extra cost.

This new and distinctive operating advantage of the Voith Inlet is only *one* reason for the selection today of the Voith Inlet as mill equipment. But it is a reason that warrants careful consideration. The saving in time made possible by running the machine right along while deckles are changed shows in dollars and cents on every payroll sheet of the operator, aside from the additional production of paper that continues when the machine continues turning out paper. Every fifteen minute stop in production is a dead loss.

Eliminate lost production—and at the same time improve the quality of your paper through operation of the 1929 Voith Inlet. Its operating features all combine to produce better paper.

Deckling in devices can be supplied for existing inlet installations.

Complete details will be sent upon request—write today.

VALLEY Equipment Includes

Beaters: Holland and Niagara
Deckers: Single and Double
Agitator Equipment
Screens: Flat and Rotary
Pumps: Centrifugal and Stuff
Cylinder Paper Machines
Voith Stock Inlet
Laboratory Equipment
Stock Valves: 2 and 3 Way
Stock Consistency Regulators
Beater Rolls and Fillings
Digester Fittings of all Kinds

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: **350 Madison Avenue**

Western Manufacturing & Sales Division:
Smith & Valley Iron Works Co., Portland, Oregon

News Print Prices Fixed at $55.20 F.O.B. Mill

(*Continued from page 21*)

been made, and all the paper manufacturers have subscribed to it, whereby the price will be $55.20 a ton instead of $50 a ton, with the danger that the latter price would fall to $48.

"Let me add, for the benefit of the member for Hull, that the Governments of Quebec and Ontario never went down on their knees to the Americans, as is claimed. They were told that they must respect the laws of the provinces, and make the best possible arrangement. I can tell the member for Hull that, as far as the International Paper Company is concerned, we find much goodwill there, even bettter than we found with some Canadian companies, and the arrangement that it has been possible to make is due to the intervention of the International Paper Company.

"Mr. Hearst and the International Company made a contract at a price of $50 a ton. Mr. Hearst has consented to rescind this contract, and to pay the higher price, and today the matter is completely settled. I may add, also, for the benefit of the member for Hull that the companies which held out to the last against signing are Canadian manufacturers. However, today, every one has signed, both in Ontario and Quebec, and the crisis is finished, and this fine industry, so essential to Canada, is at the dawn of still finer days than it has ever known."

Mr. Taschereau added that, as far as the International Paper Company is concerned, he could say that this company had saved many people in the affair of the Riordon Company, people who would otherwise have been ruined, because of being creditors, or working in the mills, or for other reasons. It was also a fact that only one-quarter of the holdings of the International Paper Company in this province came from the Government. The other three-quarters had been acquired by the company from Canadian companies. Mr. Taschereau also defended the Government's position in regard to the development of water powers by the company, showing how these had helped in the establishment of industries. The item passed on division.

Legislation Affecting Pulp & Paper Industry

Two bills affecting the pulp and paper industry have been introduced into the Quebec Legislature and have failed to pass as drafted. They are bills to confine the employment of chemists and forest engineers within the Province to graduates of provincial colleges or members of provincial associations. In each case the contention was that foreign companies engaged in the pulp and paper industry in the Province brought in their own chemists and foresters and refused to employ qualified natives. In neither case could these contentions be substantiated. Consequently the Chemists Bill was killed in committee, while the Forestry Bill failed to pass as drafted, the prospect being that it would be revised. It was pointed out that if this bill were passed an American investor, who wishes to invest his money in the forests of this province would not be allowed to send his own experts here to give him a report on whether it would be well or not well to make the investment.

As was the case with the chemists bill, it was shown that the charge of discrimination against Canadians, and especially against French-Canadians, is not as serious as claimed, and, arising from the discussion comes also the belief among members of the committee that in future there will be more thought given to the idea that native sons of Canada should get all possible consideration in appointments which are more than those of ordinary labor. The companies, in any event, defended themselves against the charge that they favor foreigners as against Canadians.

New Pulpwood Carriers

The Davie Shipbuilding Company at Lauzon, Que., is building a steel vessel which has been especially designed for the carriage of pulpwood and to suit the shallow draft conditions obtaining at Sault au Mouton and Donnacona, Quebec. This is being duplicated at the present time in another shipyard at Montmagny and is being built by Price Brothers. But the latter boat will be a wooden one, though in other details it follows the lines of the steel vessel.

What makes these boats particularly noteworthy is the fact that an electrically-driven conveyor is being built into the bottom of them and leading out through a watertight tube over the vessel's stem. This rather novel arrangement, a development of the Donnacona company's engineers will greatly facilitate pulpwood discharge and is expected to decrease unloading time and expense very considerably.

These vessels are not in the nature of an experiment, for a season's trial has been given to their type. Last year Canadian Vickers built two such craft which are propelled by two oil engines of 100 horsepower each. The loading and discharging arrangements were provided on the docks and comprised chutes for loading and movable conveyors for discharging. All these vessels were designed by Walter Lambert, of Montreal.

International's Nova Scota Interests

The International Paper Company is reported to have taken an option on the common stock of the Avon River Power Company in Nova Scotia, which supplies light and power in Windsor, Hantsport and the surrounding territory. The total power development is 9,350 h.p., and there are 75 miles of transmission line. The International Paper Company also owns timber limits in Nova Scotia. The Avon River Power Company owns and operates timber limits and a ground wood pulp mill there. If International Paper be interested in the Avon River situation, it would be due doubtless to the combination of pulp and paper assets in the one company.

International Enters Pacific Field

From Vancouver it is stated that the International Paper Company has purchased an interest in Canadian Forest Products, Ltd., originally the Beaver Cove Lumber and Pulp Company, the assets of which were sold to the International Harvester Company in 1925 for approximately $6,000,000. The property is located on the east side of Vancouver Island, 175 miles from Vancouver. It includes valuable timber and pulpwood property and water power sites. If it be true that the International Paper Company is now interested in the property, it is expected that a development involving $15,000,000 will be proceeded with.

Cyrus McCormick, Jr., of Chicago, is president of the Canadian Forest Products, Ltd., with George R. Ranney and William N. Reay, vice presidents, both of Chicago. Other directors are: Arnold B. Keller, treasurer, Chicago; William R. Odell, Jr., assistant secretary-treasurer, Chicago; W. H. White, Bayne City, Mich.; R. G. Brooks and W. S. Elliott, Chicago; George C. Pratt, C. S. Battle and W. B. Farris, K.C., all of Vancouver.

Abitibi Had Poor Year

The report of the Abitibi Power and Paper Company for the year ending December 31 last shows earnings from operations at $7,380,963, or at the rate of $1.33 on the outstanding common stock.

This is the first year of operations of the amalgamated companies and comparison with statements of previous years are necessarily inadequate owing to the fact that since January 1, 1928, when the company acquired the ownership of Spanish River and other companies, there has been a considerable amount of necessary re-establishment and also due to the chaotic conditions in the news print industry.

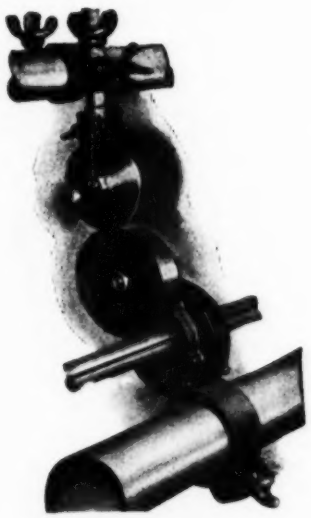
After the deduction of bond interest and depreciation there remained a net profit for the year of $2,846,041. This compares with $2,904,574 in 1927. Preferred dividends paid amounted to $1,529,325, leaving a balance of $1,316,716.

Alexander Smith, the president, in his remarks on the financial statement says

"The year 1928 was one of serious over-production in the news

"M. & W." Removable Bottom Slitters

Especially designed for wide and fast-running paper machine drum winders



THE GREATEST TIME-SAVING DEVICE FOR WINDERS IN RECENT YEARS

New and Desirable Features

1 Bottom slitters supported by arms from a stationary bar exactly the same as the top slitters, and are independent and removable—and all driven independently from a small, slow-running shaft.

2 The troublesome high speed, large diameter bottom slitter shaft is dispensed with, and a smaller diameter shaft used, running one-third the speed, and in ball bearings in slitter arms.

3 Slitters are adjusted to width of sheet—same as the top slitters.

4 Disc slitters or double edge band slitters may be used, and are carried on small spindles on ball bearings.

5 The wear of slitters caused by the vibration of the heavy slitter shaft eliminated.

6 A bad cutting bottom slitter is more likely to be replaced by a good one and a clean edge made—Removing and resetting all slitters being unnecessary.

7 Labor saved by not handling the slitter shaft, heavy slitters, etc.

(PATENTS PENDING FOR THESE IMPROVEMENTS)

Slitting Attachments with "M. & W." Removable Bottom and Top Slitters can be supplied for drum winders, any width

FURTHER PARTICULARS UPON REQUEST

The MOORE & WHITE Co.
PHILADELPHIA, PA.
N. PHILA. STA. PENNA. R.R.
PAPER MILL MACHINERY

print industry, accompanied by destructive competition, unwarranted price cutting, and a general condition of demoralization, which culminated in the last half of the year in price quotations so low as to threaten the welfare of publisher and manufacturer alike. The company's production was less than 64 per cent of its capacity, and net receipts for paper bore no relation to current contract prices. Under the leadership of the premiers of Ontario and Quebec, a serious program of stabilization is now under way with excellent prospects of success. With the stimulus of low prices, consumption of news print paper is increasing, and your directors look to the future with complete confidence in your company's ability to meet all competitive conditions that may arise."

A quarterly dividend of $1 a share was initiated in 1928 after the merger and the sub-division of the old Abitibi stock on a two-for-one basis. Payments were made for three quarters, but in the final quarter of the year no dividend was declared on the common stock in view of the unstable conditions in the news print industry.

Kraft Paper Prices

International Paper's announcement of an advance in the price of kraft paper amounting to $10 per ton, which move will be followed by other kraft producers, creates a more hopeful outlook for manufacturers of these commodities in Canada, and notably for the Wayagamack and Dryden companies. The shipments of wrapping paper from Canadian mills last year, largely for the domestic market, amounted to 23,350 tons.

$65,000,000 Power Scheme Sanctioned

The Dominion Government, by Order-in-Council, has sanctioned the application of the Beauharnois Light, Heat and Power Company for approval of plans for a power canal between Lakes St. Francis and St. Louis on the St. Lawrence River, a few miles above Montreal. The scheme involves a diversion of 40,000 cubic feet per second, and will enable the company to proceed with an initial power development of 500,000 horsepower. It is estimated the proposal will cost $65,000,000 approximately.

A charter for proceeding with the work had already been granted by the Provincial Legislature of Quebec, which acted on the assumption that the water powers on all navigable rivers in the Province of Quebec, including those on the St. Lawrence, belong to the Province, and the approval of the Dominion Government was asked under the provisions of the Navigable Waters Protection Act. The fact that the Dominion Government has granted approval, subject to protection of the interests of navigation, is a tacit admission, hitherto withheld, that the federal authorities have no jurisdiction as regards water powers. This has special significance in view of the proposed joint scheme between Canada and the United States for the development of the St. Lawrence waterway and the harnessing of its water powers.

The president of the company putting forward this project is Frank P. Jones, formerly president of the Canada Cement Company, and one of the most successful business men in the Dominion. He states that contracts have already been entered into for the disposal of the power to be developed, and that several large new industries will be established in the vicinity of Montreal.

The project, it is estimated, will provide employment for 2,000 people for a period of three years. The promoters also claim that it will bring about an increased industrial population during the next decade of possibly 2,000,000 people.

A Merger Development

Some significance is seen in the calling of a special general meeting of the Brompton Pulp and Paper Company, Ltd., on March 21, to approve an amendment to the by-law which has to do with the number of directors. While nothing official has been announced, it is learned that a directorate of eight will replace the present directorate of twelve, following a virtual change in the control of the company, and that the new board will include representatives of two strong news print organizations who are believed to have acquired a substantial interest in the company. This development would seem to foreshadow a combination or merger development that would include Brompton. Such a merger, on a large scale, has been hinted for some time past.

F. N. Burt Co. Had Increased Profits

An increase in profits and an improvement in liquid position is reported by the F. N. Burt Company, Ltd., manufacturers of paper boxes and other lines, for the year ended December 31, 1928. Profits available for distribution on the common stock was equal to $4.72 a share, contrasted with $4.60 in 1927 and $3.70 in 1926. After meeting all charges, including dividends, the profit and loss account was increased by over $180,000 in the year. Profit from operations amounted to $789,843, compared with $757,021 in the preceding year and $664,727 in 1926. From the year's profit the following deductions have been made: depreciation, $187,445; written off patents, $25,609; preferred dividends, $5,799; common dividends $320,058, and taxes of $67,000, leaving a surplus of $183,931, which added to the balance forward of $858,763, brought profit and loss balance of $1,042,695. An improvement of nearly a quarter million dollars has taken place in the company's liquid position and in this connection, President S. J. Moore, of Toronto, says the working capital which was heavily drawn upon during the years 1926 and 1927 in the building of the new factory at Buffalo, was increased during the year. It is the expectation of the directors that this will be further increased during the current year. The ratio of current assets to liabilities is about 2¼ to 1 with net working capital of $947,333, exclusive of $200,000 balance of sale price of paper cup department. The amount of preferred outstanding was reduced from $87,800 to $79,900 through the conversion privilege, and the common stock shows a corresponding increase. In speaking of operations President Moore states, despite the keen competition which naturally resulted in lower prices, net profits were slightly higher than those of the preceding year, because of improved manufacturing facilities.

George Davidson, sales manager of the Howard Smith Paper Mills, Ltd., sailed a few days ago from New York, via the Panama Canal, for San Francisco. He will join E. G. Rolph, advertising manager of the company, at Vancouver, and both will call on the Western Canada paper trade on their way back east.

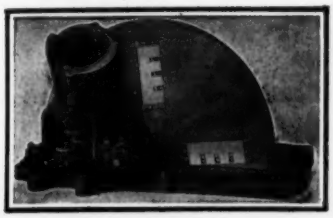
Slight damage was wrought by fire a few days ago at the plant in Merritton, Ont., of the Interlake Tissue Mills, Ltd., manufacturers of light weight papers, when sparks from an acetylene torch set fire to some waste paper in the third story. The blaze was quickly extinguished by the workmen themselves with their own apparatus.

Finnish Paper Industry Has Good Year

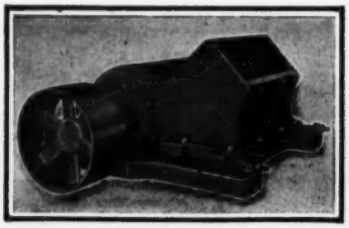
The Finnish paper industry on the whole experienced a satisfactory year during 1928 according to reports received by the Department of Commerce at Washington, D. C. The Finnish Paper Mills Association reported by November that many of its members had already disposed of their entire 1929 output, while others had but small amounts left available for sale. A number of foreign newspapers have ordered to cover their requirements for this year. Prices have shown a slight advance. The market for thin print has also been good throughout the year. Heavy kraft has been in good demand and plenty of orders are on hand for several months ahead. The same holds true of greaseproof and other wrapping papers, although in case of the latter prices are not entirely satisfactory. At the end of November the fine paper mills have had orders for two or three months ahead.

Clarence S. Cross Dead

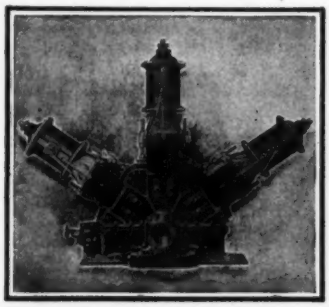
HOLYOKE, Mass., March 5, 1929.—Word was received in Holyoke the past week of the death at Chicago of Clarence S. Cross, formerly superintendent of the Japanese Tissue Mills of this city, now the American Tissue Mills, Inc. He was first cousin of the late J. Louis Perkins and came to Holyoke about 1902. He was soon after transferred to the sales department. He was a member of the old Holyoke Club and was very active in the social and sporting life of the city. He was unmarried. The body was brought to Holyoke for burial in Forestdale Cemetery where his parents also are buried.



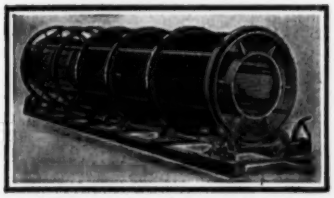
The Carthage Chipper



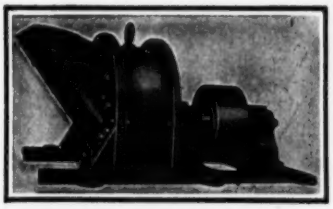
The Carthage Pulp Shredder



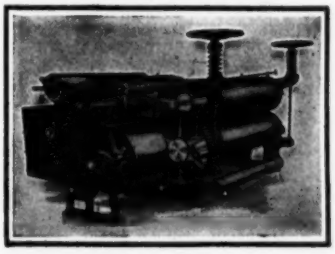
The Carthage Wood Pulp Grinder



The Carthage Tapered Rotary Chip Screen



The Carthage Chip Crusher



The Carthage Wet Machine

The Carthage Barker

Carthage

Headquarters for Ground Wood and Sulphite Fibre Mill Machinery

WHEN faced with the problem of considering new equipment, you seek the manufacturer with a successful reputation—knowing full well that there is no substitute for experience.

For more than 30 years we have specialized in the design and manufacture of pulp and paper mill machinery. From the advent of the first Carthage Machine in 1894 we have constantly sought to improve our machines—wherever improvement was possible.

The fact that Carthage Machines are daily serving the leading mills in America and Canada is your best assurance of satisfactory service. Consult with us concerning your needs. We will gladly send you further information and estimates.

"Carthage" Products Include:

Barkers
Chippers
Chip Screens
Chip Crushers
Wood Splitters
Pulp Grinders
Pulp Shredders
Pumps—Iron & Brass
Wet Machines
Cylinder Moulds
Pope Refiners & Brushing Engines
Flat Screens
Smith Dryer Joints
Wood Washers
Digester Blow Valves
Quick Opening Gate Valves
Iron, Brass & Bronze Castings
Special Machinery

Carthage Machine Company

Manufacturers of Pulp and Paper Mill Machinery

Carthage, N. Y. **Belleville, Ont., Canada**

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Chicago, Ill.—The Evans Fibre Box Company, 3301 West 47th Place, manufacturer of a new addition to plant, to be one-story, brick and steel, reported to cost about $100,000, including equipment. Bids will be asked at once on general contract. A. Epstein, 2001 West Pershing Road, Chicago, is architect and engineer. S. R. Van Horne is president.

Buffalo, N. Y.—In connection with its general expansion, the du Pont Cellophane Company, River Road, manufacturer of transparent wrapping materials, has concluded negotiations for the purchase of Capes-Viscose, Inc., Delawanna, N. J., manufacturer of bottle caps and kindred products, including cellulose caps for sealing service, and will consolidate with its organization. It is understood that the Dalawanna plant will be continued in service for the time being and an expansion program carried out.

Greenville, Miss.—The Paepcke Corporation, Conway Building, Chicago, Ill., F. G. Becker in charge, has plans under way for the construction of a new mill at Greenville, Miss., for the manufacture of wood pulp, with adjoining unit for conversion into insulating board. The structure will be one-story, 140 x 550 feet, and is reported to cost in excess of $200,000, with equipment. Extensive capacity is planned. The Chicago Mill and Lumber Corporation, 111 West Washington Street, Chicago, is interested in the project, and raw material supply will be secured from the plant of that company at Greenville, comprising for the most part present mill waste. M. G. Laigle will be construction superintendent, in charge.

Monroe, Mich.—The Consolidated Paper Company, East Elm street, has awarded a general contract for construction of proposed new addition to Whitehead & Kales, 2361 Beecher avenue, Detroit, Mich., and work will proceed at early date. An award for foundations and substructure has been let to the W. H. Knapp Company, Dixie Highway, Monroe. The new unit will be one-story, estimated to cost about $200,000, and will be used for storage and distributing service. Foster, Wernert & Taylor, Nicholas Building, Toledo, Ohio, are architects. E. C. Rauch is president.

Port Huron, Mich.—The Port Huron Sulphite and Paper Company has recently disposed of a block of common stock, a portion of proceeds to be used for general financing and expansion. The company is capitalized at $300,000.

Milwaukee, Wis.—The American Lace Paper Company, 908 Juneau avenue, has closed bids for its proposed new plant addition on Port Washington Road, recently referred to in these columns, and will soon make contract award. New unit will be four-story, 82 x 320 feet, reported to cost more than $150,000, with equipment. Richard Philipp, 405 Broadway, Milwaukee, is architect.

Milford, Conn.—The New England Corrugated Box Company, Milford, has acquired the former local plant of the Stanford Steel Products Company, and will use for expansion. Property will be taken over at once, remodeled and equipped for the manufacture of corrugated paper board, the output to be used in the present box factory. Large capacity will be developed.

Rogersville, Tenn.—The International Playing Card Company has approved plans for construction of new addition to mill, to be one-story, 100 x 250 feet, reported to cost more than $100,000, with equipment. Considerable increase in present output will be developed.

Chicago, Ill.—The Lanzit Corrugated Box Company, 2509 West 22nd street has asked bids on general contract for proposed extensions and improvements in property recently acquired at Twenty-fourth and Rockwell streets, to be used for new plant addition. A list of equipment to be installed will soon be arranged. The expansion is estimated to cost in excess of $150,000. A. Epstein, 2001 West Pershing Road, is engineer.

Newark, Del.—The Continental-Diamond Fibre Company is being organized to take over and consolidate the Continental Fibre Company, with mill at Newark, and the Diamond State Fibre Company, with plant at Bridgeport, Pa. The Continental company was established in 1906, and the Diamond State company in 1891. In connection with the consolidation, it is proposed to carry out a general expansion program for increased production. It is understood that both mills will be continued at present locations.

Barrington, Ill.—The Cellosilk Manufacturing Company, 410 Sullivan street, manufacturer of transparent wrapping materials, etc., has concluded negotiations for the purchase of the former plant of the American Malleable Iron Company at Barrington, and will take over at an early date. The property consists of two main units, comprising one-story building, 200 x 400 feet, and two-story structure, 40 x 110 feet, both of which will be remodeled and improved. Installation of equipment will soon begin, and the units are expected to give employment to about 100 operatives. Present plant will be removed to the new location and capacity increased. The two buildings are located on a tract of 8 acres of land which will be used for future expansion.

Chicago, Ill.—The Ansell Ticket Company, 730 North Franklin street, manufacturer of card stocks, etc., has superstructure under way on new plant addition for increased output, to be one and two-story and basement, 75 x 150 feet, reported to cost close to $50,000, with equipment. General contract was recently let to the Regan Construction Company, 228 North LaSalle street. Olsen & Urbain, 228 North LaSalle street, are architects.

Lynchburg, Va.—The Mead Paper Board Corporation, Dayton, Ohio, and John H. Heald & Co., Inc., Lynchburg, are awarding contracts for machinery, for proposed new pulp and board mill now in course of construction, at Lynchburg. An order has been given to the Black-Clawson Company, Hamilton, Ohio, for a paper board-making machine, and it is expected to begin installation in April. The new plant will have a rated output of about 100 tons of chestnut pulp liner board per day, and is reported to cost more than $1,500,000. Campbell King is construction engineer, in charge.

Shelby, Ohio—The Shelby Sales Book Company has completed plans and will proceed with construction of new addition to its paper products plant, to be two-story and basement, 110 x 150 feet, brick, steel and concrete, reported to cost more than $85,000, with equipment. A list of machinery to be installed has

This is a typical installation of Norwood Gravity Filters in a paper mill. Ask for a list of installations in your vicinity.

Are You Running Your Paper Mill For Pleasure or Profit?

IF YOU are running your mill for profit, you know full well that one of the "secrets" of making a profit in the business is the economical production of a better sheet than your competitors can produce for the same money. And one of the "secrets" of making better papers economically is the filtration of the water to remove all pollution, dirt and debris.

Of course it's no secret that Norwood Filters are installed in the majority of the mills of the country, and that they give long, dependable, trouble-free service with low operating and maintenance costs. If you want to look into the matter of economical filtration before the Spring freshets fill your water supply with foreign matter, we suggest that NOW is a good time to ask Norwood's engineers to figure on a modern up-to-the-minute filtration system for your plant. Your inquiry places you under no obligation.

You can't go wrong with a Norwood installation of Filters, Calenders, Platers, Dusters, Rag Thrashers, Folding Machines or other equipment. Ask for catalogs and specifications.

Norwood Engineering Co., Florence, Mass.

NORWOOD

been arranged. The H. K. Ferguson Company, Hanna Building, Cleveland, Ohio, is general contractor.

Anniston, Ala.—Officials of the H. K. Regar & Sons Company, manufacturer of hosiery, with main plant at Bridgeport, Pa., and branch mill at Cedartown, Ga., are at the head of a new company now being organized, to be known as the Anniston Box Company. Property has been secured on West Tenth street, Anniston, and will be used for new plant for the manufacture of paper and cardboard boxes suitable for hosiery packing. It is proposed to begin operations at an early date, with initial plant giving employment to about 25 operatives; this number, it is said, will be increased in the future.

Temiskaming, Que.—The Canadian International Paper Company, Montreal, Que., a subsidiary of the International Paper Company, New York, has begun an expansion and improvement program, the du Pont Cellophane Company, River Road, manufac- the capacity more than 2,000 tons of rayon sulphite wood cellulose per month, making a total rating to about 100,000 tons of such material per annum. A list of equipment to be installed has been arranged. Estimated cost has not been announced.

Fort William, Ont.—The Fort William Paper Division of the Abitibi Power and Paper Company, Ltd., has authorized immediate resumption of operations at its local Fort William mill, following a shut down for a number of weeks, and one paper-making machine will be started at once. Another machine is expected to be placed in service at an early date, developing normal output at the mill.

New Companies, Etc.

Hartford, Conn.—The C. & M. Supply Company, Inc., has been incorporated with a capital of $50,000, to deal in paper products of various kinds. The incorporators are J. L. Morrison, A. O'Connell and A. S. Bordon, 205 North Whitney street, Hartford. Last noted is representative.

New York, N. Y.—The Graystone Paper Company has been incorporated with a capital of $5,000, to manufacture and deal in paper products. The company is represented by N. Leiberman, 1482 Broadway, attorney.

Wilmington, Del.—Fancy Papers, Inc., care of Franklin L. Mettler, 832 Market street, Wilmington, has been incorporated under state laws, with capital of $50,000, and 1000 shares of stock, no par value, to manufacture paper boxes and containers.

Seymour, Conn.—The Seymour Paper Company has filed final notice of company dissolution.

Philadelphia, Pa.—The Wilson Paper Company, 118 North Third street, has filed notice of organization, to deal in paper goods. M. H. Wilson, Laurel Springs, N. J., heads the company.

Akron, Ohio—The Portage Paper Box Company has been incorporated with a capital of 250 shares of stock, no par value, to manufacture paper boxes and containers. The incorporators are H. E. Myers, Leland Bricker, and Raymond Hindo, all of Akron.

Freeport, Ill.—The Super-Service Paper Company, Freeport, has filed notice of increase in capital to $12,000, for expansion.

Brooklyn, N. Y.—The Loose Leaf Products Corporation, care of S. & M. Luloff, 280 Madison avenue, New York, attorney, has been incorporated with a capital of 200 shares of stock, no par value, to manufacture and deal in commercial paper products.

Trenton, N. J.—Oscar T. Smith & Son Company, Curtain avenue and Aiken street, Baltimore, Md., paper goods for bank and commercial service, has arranged for a lease of the building at 36 West State street, Trenton, aggregating about 5,000 square feet of floor space, and will establish a new branch plant at that location.

Wilmington, Del.—The Century Wall Paper Mills, Inc., care of the Corporation Trust Company of America, du Pont Building, Wilmington, has been incorporated with a capital of 3,000 shares of stock, no par value, to manufacture wall papers and kindred products.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 11, 1929.—The Dill & Collins Company, Philadelphia, has brought out a new line of suede laid book paper in colors, which is being demonstrated to the New England trade by John Carter & Co., Inc.

The Carter, Rice & Co. Corporation is to issue an invitation shortly for their customers to attend a housewarming, March 25, at their new offices at 250 Devonshire street and meet the executives and other members of the personnel of the company, who will give them a cordial welcome.

Carter, Rice & Co. Corporation is to mail to the entire trade swatches of Snowflake Bond. The swatches are protected by covers, which when opened make the dimensions 8½ by 11 inches, so that they can be conveniently filed.

Frank Hopkins, representing Taylor-Logan Company Papermakers, Holyoke, Mass., is doing sales promotion work in Boston in Art-in-Industry Bond, for which John Carter & Co., Inc., are exclusive agents.

Lewis J. Ward, formerly Springfield representative for John Carter & Co., Inc., is now connected with the Boston office. He is living in Wollaston, Mass.

John H. Brewer, of Storrs & Bement Company, has been elected secretary and treasurer of the Linweave Association, composed of fine paper merchants of the United States and Canada.

Percy D. Wells, in his second number of Paperettes, a publication "issued wholly for the purpose of selling paper for Percy," says that "that is exactly what this number did." He was called in to show a customer the 23 colors of Canson Ingres all rag deckle edge papers. The customer selected Olive Brown No. 15 and Mr. Wells received a real order.

The offices of Baird & Bartlett Company, box board dealers, have been repainted and the furniture in the main office rearranged.

Charles A. Coombs, secretary and treasurer of the Natick Box and Board Company, Natick, Mass., has returned from a six weeks' trip to Florida, accompanied by Mrs. Coombs.

Word has been received that George M. Graves, of Geo. M. Graves Co., Inc., sailed from Liverpool March 9 on the *Lancastria*, after a visit of about five weeks in Europe.

Say Proposed Rate Legislation Is Unwise

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., March 11, 1929.—Proposed legislation by which the Public Service Commission would be enabled to adjust losses resulting from discrimination in freight rates between points in New York State was characterized as unwise by opponents of the plan at a joint hearing before the Senate and Assembly public service committees at a meeting here. Representatives of the railroads asserted that such a plan had been considered by former Governor Charles E. Hughes and his advisers in 1907 when framing the public service commission law and had been discarded. Attorneys for the railroads also argued that the legislation proposed to confer judicial power on the Public Service Commission which was denied by Fred M. Renshaw, of Buffalo, who appeared for the shipping interests favoring the bill. Renshaw said the bill would restrict the commission to considering only those cases in which discriminatory rates were involved.

It was also explained that under existing schedules a higher rate prevailed over the Lackawanna Railroad from Buffalo to Elmira than from Buffalo to Binghamton due to the fact that the railroad dipped into Pennsylvania thus bringing it under control of the Interstate Commerce Commission. It is also claimed that it costs more to ship from Buffalo to Olean than from Buffalo to Williamsport, Pa., for the same reason. Parker McGollister, representing newspaper publishers, said the publishers of New York City faced unfair rates from the Northern New York paper mills due to the fact that one railroad crosses into New Jersey while another turns into Vermont for a short distance.

Link-Belt Products from Stock

No *Delay* . . . . No *Waiting*

Sprockets

You can now get immediate delivery, from our large stocks. Send for Stock Book 918-B.

Silent Chain Drives

Made in all horsepowers. Drives up to 60 H. P. obtainable from stock. Stock Book No. 725.

Elevator Buckets

Bulletin B-17 lists the popular styles and sizes. We make all kinds. Largest stocks.

Malleable Grease Cups

Keep their shape and remain grease-tight. Our >HEX-TOP< is the best grip made.

Malleable Safety Collars

Unsurpassed for resisting wear, rust, shocks and rough usage. Made solid and split.

Steel Chain, "SS" Class

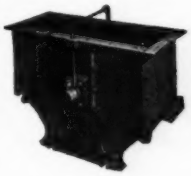
An ideal power transmission where great strength, durability, and long reliable service are expected.

Ewart Link-Belt

The Original Ewart Link-Belt bears this trade >—< mark of quality.

Friction Clutches

Powerful in action. Simply constructed. Easy to operate. Stock delivery. Tell us your needs.



Elevator Boots

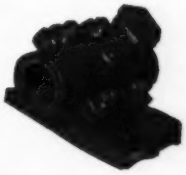
To meet every condition. With take-up or fixed bearings. Type shown is very popular.

Steel "RC" Roller Chain

Has remarkable durability, and is an ideal drive for moderately high speed power transmission. Book 257.

Bucket Elevators

All types and sizes for all kinds of material. Let us solve your elevating problems.



Bearings

Solid boxes, angle bearings, pillow blocks, etc., etc. Bearings of all kinds and sizes.

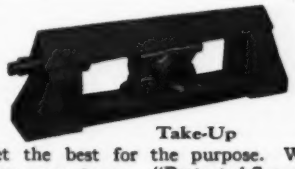
Speed Reducers

For all classes of service. Speed ratios up to 300 to 1. Sturdy, Compact, Efficient, Economical. Book 815.

Anti-Friction Belt Conveyor Idler

Low Power Consumption. Low Upkeep. Easy on Belt.

Catalog and Engineering Data Book 615.



Take-Up

Get the best for the purpose. We have many types. "Protected-Screw" Type "DS" shown.

LINK-BELT COMPANY 3633

Leading Manufacturers of Elevating, Conveying, and Power Transmission Chains and Machinery

CHICAGO, 300 W. Pershing Rd. INDIANAPOLIS, 200 S. Belmont Ave. PHILADELPHIA, 2045 W. Hunting Park Ave. SAN FRANCISCO, 19th & Harrison Sts.

Ashland, Ky. - - - 100 W. Winchester Ave.
Atlanta - - - - 511 Haas-Howell Bldg.
Baltimore, Md., R. 800 Maryland Trust Bldg.
Birmingham, Ala. - 229 Brown-Marx Bldg.
Boston - - - - - 1103-4 Statler Bldg.
Buffalo - - - - - 554 Ellicott Square
Cleveland - - - - - 527 Rockefeller Bldg.
Dallas, Texas 1101 Mercantile Bank Bldg.
Denver - - - - - 520 Boston Bldg.
Detroit - - - - - 5038 Linsdale Ave.
Grand Rapids - 536 Michigan Trust Bldg.
Kansas City, Mo., R. 436, 1002 Baltimore Ave.
Louisville, Ky. - - - - 349 Starks Bldg.
Los Angeles - - - 361-369 S. Anderson St.
Milwaukee - Room 1403, 425 E. Water St.
New Orleans - - - - 621 S. Peters St.
New York - - - - 2676 Woolworth Bldg.
Oakland, Calif. - - - - - 526 Third St.
Pittsburgh - - - - - - 335 Fifth Ave.
Portland, Ore. - - - - - - 67 Front St.
Seattle - - - - - - - 820 First Ave., S.
St. Louis - - - - - - - 3638 Olive St.
Utica, N. Y. - - - - - - 131 Genesee St.
Wilkes-Barre, 526 Second National Bank Bldg.

H. W. CALDWELL & SON CO.:—Chicago, 2410 West 18th St.; New York, 2676 Woolworth Bldg. In Canada—LINK-BELT LIMITED—Toronto; Montreal; Elmira, Ont.

LINK-BELT

Obituary

Theodore F. Merseles

DEL MONTE, Cal., March 7, 1929.—Theodore Frelinghuysen Merseles, president of the Johns-Manville Corporation, died last night at the Del Monte Hotel, Del Monte, Cal., at the age of 65. Mr. Merseles was born in Jersey City in 1863, the son of Theodore Frelinghuysen Merseles and Charlotte Thompson Merseles. He was educated in public and private schools, and in 1881 entered employ of the Pennsylvania Railroad as a clerk. He remained with the railroad until 1893, when he left to become manager and vice-president of the Western Wheel Works, bicycle manufacturers.

In 1899 Mr. Merseles, with Col. Albert A. Pope and A. G. Spalding, assisted in organizing the American Bicycle Company of New York, and was made its vice-president. He remained with this organization until 1903, when he turned his attention to another field of business, in which he was to prove remarkably successful.

From 1903 to 1921 he was vice-president and general manager of the National Cloak and Suit Company, a mail order house, and left them to become president of Montgomery, Ward & Co. He remained as head of this large organization until 1927, when he retired as president, retaining the office of chairman of the executive committee, to become president of the Johns-Manville Corporation.

Mr. Merseles also was a director of Seaboard National Bank and of many large corporations and was a member of the Union League, India House and Bankers clubs of New York and the Union League of Chicago.

He married Miss Elizabeth Rich of Jersey City in 1888 and has two sons, Herbert E. Merseles, and Theodore I. Merseles. Mr. Merseles made his home in Bronxville, N. Y., for many years.

John J. Laing

ROCHESTER, N. Y., March 7, 1929.—John J. Laing, who will be recalled by many old time associates of the paper industry, passed away at his late home, 833 Meigs street, Rochester, on February 23, aged 77 years, after 63 years in the paper trade.

His earlier experience, starting in Lambertville, N. J., carried him throughout the United States and Canada, in tissues, board, wrappings, news, bonds and writings.

Some years ago he was engaged as a pioneer manager and teacher of paper making in Japan, and was also with the American Wood Paper Company, in Pennsylvania, where the soda process was first introduced in this country.

Since 1910 he had been connected with the Forest Products Laboratory, Madison, Wis., on experimental work. He leaves a wife and four sons.

Martin J. Judge

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., March 12, 1929.—Martin J. Judge, well known wholesale and retail paper dealer, died last Tuesday at the Providence hospital after a few days' illness. He was born in South Hadley Falls in 1865 and educated there. After several years' experience with the Glasgow Mills now the Hadley Mills he became bookkeeper at the Albion Paper Company, later becoming manager.

It was while manager of that mill that he decided to go into business for himself and opened a wholesale and retail salesroom at 149 Main street, enlarging it greatly in 1914. In addition to this business he was actively interested in the Eureka Blank Book Company.

He was one of the incorporators of the Hadley Falls Trust Company in 1916 and was actively interested in the affairs of the town of South Hadley, having served as treasurer of the fire district, member of the Board of Selectmen, member of the Board of Water Commissioners and on the prudential committee of the town.

He married in 1895 Miss Johanna Long, who died about six years ago. He leaves two daughters, Esther Louise and Elizabeth Mary, and four sons, Gerald, of South Hadley, Martin, Jr., of Holyoke, and Lawrence, and Frederick Judge, also of the Falls. The funeral was held at the house Friday morning, followed by solemn high requiem mass at the St. Patrick's church with burial in St. Rose cemetery.

Byron Lapham Dead

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., March 2, 1929.—Byron Lapham, 81 years old, for many years prominent in the paper and allied industries of this section, died during the past week at his home here following a long illness. He was born in this locality and received his early education in the Glens Falls Academy and the Albany Commercial School. For a number of years he operated a grist mill on the site of the electric power plant of the International Paper Company at South Glens Falls, disposing of his interests a few years ago. In addition to his duties as a director of the Standard Wall Paper Company, recently taken over by the United Wall Paper Company, he was also first vice president and a director of the Glens Falls Portland Cement Company and also prominently identified with the Glens Falls Insurance Company. Since 1906 he served as president of the Glens Falls National Bank with which institution he had been identified since its founding. During the recent world war he was chairman of the County Home Defense Committee and a member of the Liberty Loan Committee.

Better Paper Demand in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 11, 1929.—A continued improvement is noticed in the paper business here, with the fine papers being out in front in sales. Printers and advertisers are rushing their work for the spring advertising campaigns, including much direct mail matter and many catalog jobs. There is considerable competition, however, among the paper interests and this coupled with prices at the mills, make profits somewhat small.

An increase also is noted in demand for wrapping paper and bags and similar merchandise. This rather was to be expected with the coming of the spring season. Business in this line is reported satisfactory and the prices are very firm.

A better tone is noted in the paper stock business. Demand is a little better and prices are firm. News print demand is only average. The larger papers are just slightly above this time last year in their requirements, but with continued cold weather, the heavy advertisers for spring merchandise are withholding their sales appeals until the temperatures conform with the calendar.

Port Huron Sulphite Co. Offers Stock

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 11, 1929.—An offering of the common stock of the Port Huron Sulphite and Paper Company has been made by Livingston, Crouse & Co., Detroit investment house. The company manufactures a general line of sulphite and papers. Its capitalization consists of $300,000 authorized and outstanding first mortgage 6½ per cent sinking fund gold bonds, 3,530 shares outstanding of an authorized issue of 10,000 shares of cumulative preferred stock and 89,742 shares outstanding of 150,000 shares of non-par common stock.

Balance sheet of December 1, 1928, shows current assets of $627,931 against current liabilities of $300,968. Net earnings of the company after depreciation, interest and federal taxes for the ten months ending November 30, 1928, amounted to $95,824, equal after preferred dividends to 86 cents a share on the common. This compares with $137,377 for the year ending January 31, 1928, or $1.49 a share.

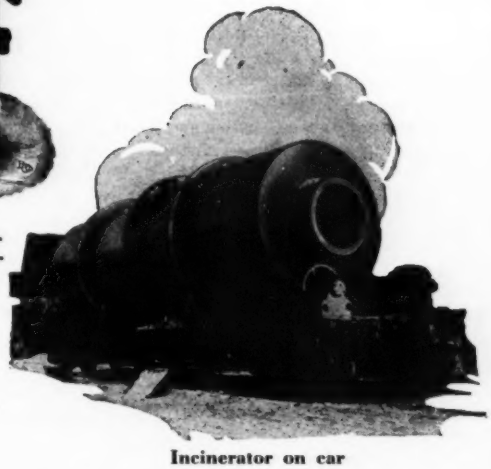
Dependable Equipment

Manitowoc Equipment is designed and built for service with the least production interruptions.

Paulson three section Barking Drum

Manitowoc riveted digester—one of those installed in 104 mills.

Always get our quotations on this equipment!



Incinerator on car

Complete information will be sent upon request. Inquiries solicited.

MANITOWOC ENGINEERING WORKS

Manitowoc, Wisconsin

MANITOWOC

New York Trade Jottings

Andrew Ragone, who for many years was a dealer in paper mill supplies, is now associated with S. J. Weiss & Co., Inc., investment brokers, of 39 Broadway, New York.

* * *

Endicott Rantoul, manager of the mulch paper department of the International Paper Company and vice-president of the Salesmen's Association of the Paper Industry, is sojourning in the Sunny South for the benefit of his health.

* * *

The Du Pont Cellophane Company, of 2 Park Avenue, New York, announces the appointment of Eugene F. Wilson to the outside Cellophane sales force. Mr. Wilson was formerly connected with E. I. du Pont de Nemours & Co., at Wilmington, Del.

* * *

The Hooker Electrochemical Company has sold the ten-story building at 25 Pine street, New York, which houses its executive and sales offices, to the 36 Wall street Corporation. The firm has made no decision yet as to the location of its new offices and does not expect to move for several months.

* * *

E. W. Mantz has joined the sales force of the Holyoke Card and Paper Company, of Springfield, Mass., and will represent the organization in the New York and Philadelphia territory. Mr. Mantz will make his headquarters in the Graybar Building, 420 Lexington Avenue, New York. Telephone Lexington 0458.

* * *

Sustaining a protest of Baer Bros., the Customs Court finds that certain imported surface-coated wrapping paper taxed by the collector at 5 cents per pound and 15 per cent ad valorem, under Paragraph 1305, Tariff Act of 1922, should have been assessed at only 30 per cent under the provision in Paragraph 1309 for "wrapping paper not specially provided for." Chief Justice Fischer writes the opinion in this case.

* * *

Arrangements have been perfected by the National Association of Waste Material Dealers, Times Building, New York, so that all members, relatives of members or employes desiring to attend the association's annual convention on March 19, 20 and 21 at Chicago will be able to secure transportation on the basis of fare and a half for the round trip under the Convention Certificate Plan, which requires a minimum attendance of 150. All those planning to attend the convention, in purchasing tickets should insist upon securing a certificate (not a receipt.) These will be validated at Association Headquarters, Chicago, and if the attendance is what is now expected, a return trip will cost members only one-half of the regular fare. Tickets may be purchased any time from March 15 to 21, depending on the origin territory, and the return trip must be commenced not later than March 25.

C. R. Gibbs Goes With Bagley & Sewall

Charles R. Gibbs, who since 1916 has been connected with the Ryther & Pringle Company of Carthage, N. Y., has accepted the position of sales engineer with the Bagley & Sewall Company of Watertown, N. Y. Mr. Gibbs will begin his new duties at once.

Mr. Gibbs holds the degree of Bachelor of Science in Mechanical Engineering from McGill University in Montreal. He is a member of the American Society of Mechanical Engineers and the Engineering Institute of Canada. He also holds a New York State Professional Engineers License.

While connected with the Ryther & Pringle Company, Mr. Gibbs has been associated with the industries in Northern New York and has handled many of the engineering problems connected with their mechanical departments.

R. S. Kellogg Analyzes News Print Situation

There was an excellent attendance of members and guests at the regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry on Monday, at the Canadian Club.

In the absence of Endicott Rantoul, the regular chairman of the division, S. C. Knode, president of the association, presided, and introduced the speaker, R. S. Kellogg, secretary of the News Print Association, who addressed the gathering on "The News Print Situation."

Illustrating his observations with timely charts, Mr. Kellogg showed how the capacity of the industry in the United States and Canada has increased from 2,750,000 tons in 1921 to 5,000,000 tons in 1928 and explained how production has fluctuated during these years. The charts also showed the number of new machines coming into operation in each year from 1919 to date.

Mr. Kellogg stated that newspaper advertising was showing an increase of 5 per cent over 1928 so far this year, and expressed the view that the higher average would continue. The Sunday editions of the leading newspapers averaged one page more during January and February than in the preceding year, while circulations are running about the same. He also considered the recent stabilization of prices a favorable factor.

Considering all the circumstances, Mr. Kellogg regarded the present situation as hopeful and expressed moderate optimism regarding the future of the industry. The address was followed by a lively discussion, which showed the intense interest aroused by Mr. Kellogg's remarks.

Acquires Buyer's Paper Co.

COLUMBUS, Ohio, March 11, 1929.—The Central Ohio Paper Company having acquired all the Stock of The Buyer's Paper Company of Dayton, Ohio, will continue the business as the Dayton Division of The Central Ohio Paper Company.

There will be no change in the personnel excepting the addition of W. H. Bancroft, vice president, who has for fifteen years been the Dayton manager of The Central Ohio Paper Company with offices in the Reibold Building, R. M. Keigh who has been so successful in building up The Buyer's Paper Company will be associated with Mr. Bancroft in the management of the Dayton Division of The Central Ohio Paper Co., at 131 East Sixth street.

The union of the forces of these houses will put Dayton in the front rank in wholesale paper distribution in the Central States.

The Central Ohio Paper Company assumes all liabilities of The Buyer's Paper Company and will put behind this division all with offices in the Reibold Building. R. M. Keigh who has been

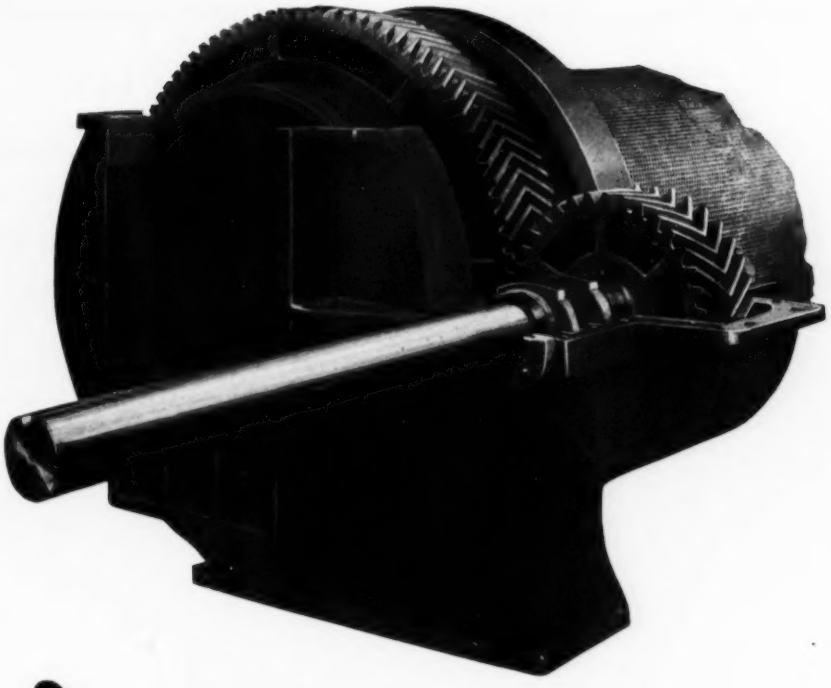
Wontendyke Mfg. Co. Expands Staff

RICHMOND, Va., March 4, 1929.—Kenneth E. Hoffman and Mr. John L. Renehan, formerly of Troy, Ohio, are now associated with the gumming plant of the Wontendyke Manufacturing Company.

Mr. Hoffman will assist in sales development and in establishing satisfactory outlets for the products of this department. Mr. Renehan will have charge of the laboratories and all technical problems. Factory production will be directly under his supervision.

Both Mr. Hoffman and Mr. Renehan are thoroughly experienced, having been associated with the largest companies in the gumming industry for several years.

The New York offices of the Wontendyke Manufacturing Company at 354 Fourth avenue, will be maintained under the direction of Louis J. Peters and the company's Philadelphia office, 226 Lafayette Building, under the direction of Frederick I. Brower will be continued.



A SILENT GEAR THAT RESISTS WEAR

Noise is one of the biggest problems in Industry. It is closely related to Vibration which deteriorates machinery and often results in the product being inferior or defective.

A great deal of the noise is caused by gears. Farrel-Sykes continuous tooth herringbone gears combine both the quality of silence in operation and great resistance to wear.

These gears may be acquired up to 228" diameter from 16 to .75 DP in any material suitable for gears. They are also applied in a series of reduction units which are highly efficient (about 99%) are automatically lubricated, oil tight and dust proof and represent the most modern development in speed reducer design.

Ask Us More About Them.

FARREL-BIRMINGHAM CO., Inc.

SUCCESSOR TO
FARREL FOUNDRY & MACHINE CO., ANSONIA, CONN., AND
BUFFALO, N. Y., AND BIRMINGHAM IRON FOUNDRY OF DERBY, CONN.
ADDRESS REPLIES TO THIS ADVERTISEMENT TO BUFFALO PLANT
344 VULCAN ST., BUFFALO, N. Y.

Power Plant Section

Reducing Power Costs Through Unit Treatment

Conducted by REGINALD TRAUTSCHOLD, Consulting Engineer

Modernizing The Power Plant

Coal Handling—II

In the discussion devoted to coal handling published in these columns December 20, 1928, a distinction was made between the two basic methods, or systems, available, that employing equipment distinguished by the fact that it handles its load intermittently and that which makes use of equipment which handles its load in a more or less continuous stream. A few examples of economical installations employing the intermittent coal handling system were also presented and since the appearance of this article, the *Technical Association of the Pulp and Paper Industry* has rendered a report in which the statement is made that where room is available the use of the drag scraper to and from the coal pile appears to be the simplest, cheapest and most effective method.

This is strong endorsement of the intermittent method of coal handling, conditions being such as to favor its adoption, but as previously pointed out the coal handling problem of a plant is distinctly an engineering one and each individual installation may afford opportunities for the use of quite dissimilar equipment. It may be more generally satisfactory to install a system of a more conventional variety which handles the coal in a more or less continuous stream. Such a system, moreover, may be extremely simple and relatively inexpensive, both in respect to first cost and maintenance.

A brief description of a few specific installations of coal handling systems in which conventional conveyors and continuous bucket elevators are employed, consequently, should best serve to illustrate methods by which some quite attractive coal handling costs are attained at plants where the methods described in December might not have been as suitable. Local conditions governed the wisdom of these installations, of course, so in presenting sketchy descriptions of the installations no brief is held for the particular system, or systems. The installations were made in each case only after due consideration of all pros and cons, and illustrate advance in modernizing the power plant quite as much as developments in the field of coal handling.

Modernizing the Boiler Plant

A simple and effective system of coal handling which is noteworthy more for the effect it has had in modernizing the boiler plant than as an installation of coal handling equipment is in use at the Whippany plant of R. B. McEwan & Son. This installation is also distinctive and somewhat spectacular by reason of the peculiarly shaped overhead coal storage bunker, cylindrical with conical upper and lower sections, which accommodates in the neighborhood of 200 tons and can be seen from a considerable distance protruding oddly from the roof of the power house.

The coal, which is received by rail, is discharged into a commodious track hopper, from which it is fed to the boot of a vertical bucket elevator by means of a reciprocating plate feeder. The elevator, traveling at 200 feet per minute, lifts the coal some 80 odd feet and discharges it direct to a coal storage bunker, the odd shaped tank rising above the roof of the boiler house. From this storage, the coal as needed is drawn off into a motor driven weigh larry which travels up and down the length of the boiler room, distributing coal to the various boilers. The larry has a capacity of about a ton and is provided with scales of the recording type which register on a ticket the exact amount of fuel fed to each boiler. This in substance, constitutes the entire coal handling system, the chief interest in which lies in the effect of the installation upon the operation of the boiler plant and upon the resulting economies.

The boiler equipment prior to the installation of this simple coal handling system consisted of four stoker fired units fed by hand. This battery of boilers has been retained and there has been added to it a fifth unit fired on pulverized coal. Each of the four old stoker fired boilers, however, has been improved by the addition of a large steel spreader spout, which, when charged from overhead by the weigh larry, serves to distribute the coal evenly over the width of the stoker. The overhead larry also feeds the pulverizing mill for the new boiler, recording for each boiler the quantity of fuel with which it is provided.

This simple arrangement of coal handling equipment has not only provided the close check on the coal consumption by the various boilers essential for the realization of the best results, but has been responsible also for a reduction of nine men in the necessary boiler room crew. This saving in labor expense alone is a matter of $1,000.00 or more a month, thus amortizing the investment entailed by the installation in short order and effecting a net reduction in cost of mill output of 50 or 60 cents a ton.

The motors which have taken the place of the former coal passers, etc., are small and consume very little power. A 3-horsepower motor suffices for driving the reciprocating plate feeder between the track hopper and elevator foot at the satisfactory speed of 35 strokes per minute. A 10-horsepower motor proves ample to care for the most arduous task of elevating the coal to the overhead storage bunker and another 3-horsepower motor takes the weigh larry about the boiler room.

A motor driven device which also proves a great money and labor saver and which is quite a factor in the coal handling system is a capstan car puller mounted beside the track hopper, by which loaded or empty cars are spotted and handled expeditiously by a single operator. This car puller is provided with a 7½-horsepower motor.

Belt Conveyor System

The quite extensive expansion program of the S. D. Warren

PRINCIPAL COAL HANDLING EQUIPMENT—
R. B. McEWAN & SON

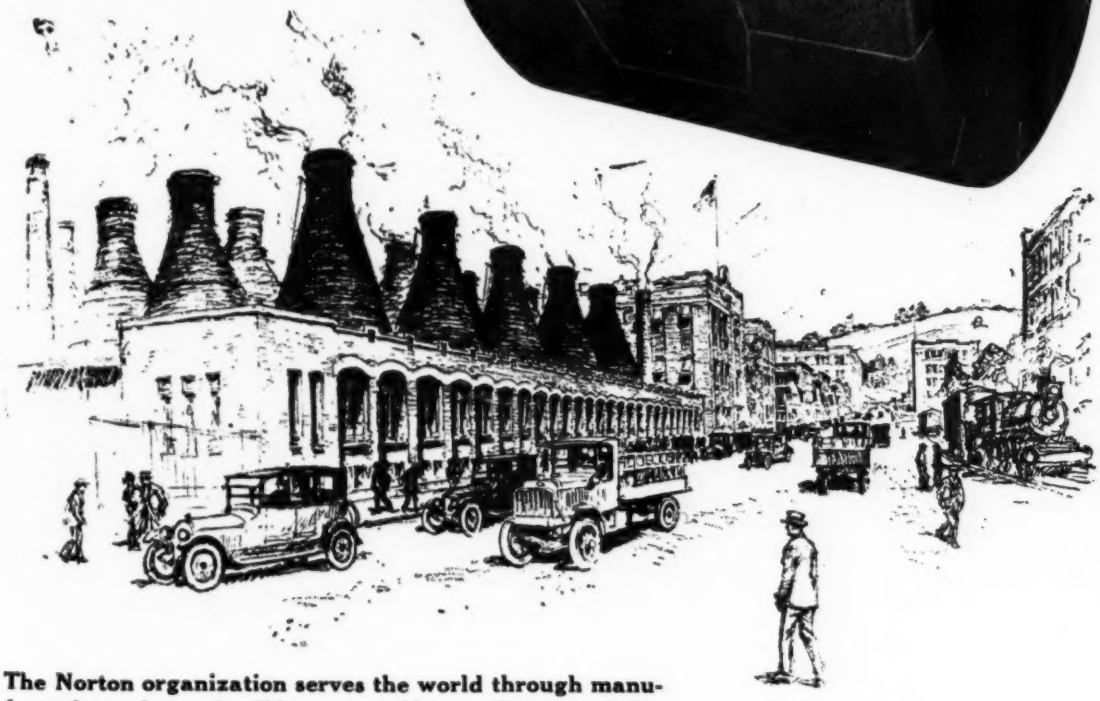
1—10 x 12 ft. steel track hopper.
1—20 x 18 in. x 5 ft. reciprocating plate feeder, driven at 35 f.p.m. by 3-hp. motor.
1—14 x 8 in. vertical bucket elevator, 83-ft. centers, m.i. buckets, driven at 200 f.p.m. by 10-hp. motor.
1—24 x 24 in. duplex gate for discharge opening in coal bunker.
1—motor-propelled weigh larry, 2,000 lbs. capacity, provided with operator's cab and scales for recording weights of coal handled, driven by 3-hp. motor.
4—stoker hoppers.
1—pulverizer hopper.
1—car puller driven by 7½-hp. motor.
Miscellaneous spouts, braces, etc.

Courtesy: Stephens-Adamson Mfg. Co.

NORTON PULP STONE

From the production of the abrasive to the assembling of the finished segments, every step in the manufacture of the Norton Pulp Stone is scientifically controlled.

The production requirements of each wood pulp mill dictates the proper grit size, hardness and structure. Every Pulp Stone therefore is made to meet specific requirements and furthermore, each succeeding stone can be duplicated exactly.



The Norton organization serves the world through manufacturing plants in Worcester, Mass., Niagara Falls, N. Y., Chippawa, Can., Bauxite, Ark., Hamilton, Can. La Courneuve, France, and Wesseling, Germany.

Norton Company, Worcester, Mass.

Canadian Trade Now Supplied from Canadian Plant

Grinding Wheels
Grinding Machines

NORTON
PULP STONES

Refractories - Floor
and Stair Tiles

PRINCIPAL COAL HANDLING EQUIPMENT—
S. D. WARREN CO.

1—dump house accommodating large receiving hopper.
1—24-in. pan feeder, 38 ft. centers, driven by 7½-hp. motor.
1—30 x 36 in. coal crusher, capacity 110 t.p.h. at 125 r.p.m., driven by 40-hp. motor.
1—24-in. belt conveyor, 450 ft. long, handling 110 t.p.h. at 250 f.p.m., equipped with automatic traveling tripper, driven by 25-hp. motor.
Miscellaneous spouts, braces, gallery, etc.

Courtesy: Stephens-Adamson Mfg. Co.

Company at Cumberland Mills has included the installation of a coal handling system of a belt conveyor which is proving highly economical and efficacious and is unique in the success with which it has avoided the annoyances incident to the presence of coal dust about the production mill. The system is self-contained in that all the coal handling equipment entailed in the passage and treatment of the fuel operates as a unit, from its receipt at the railroad siding until it is placed in the overhead bunkers in the boiler house, and is all enclosed behind dust-tight walls.

The coal cars arrive at the siding and are run, one at a time, into a commodious dump house, where the coal, after the doors are closed, is discharged into a large receiving hopper capable of holding the contents of four cars. The car being emptied remains in this dump house until all the dust has settled and the coal has been removed, a matter of about half an hour. The car is then withdrawn and another car run in.

From the receiving hopper, the coal is fed to a coal crusher having a capacity of 110 tons per hour by means of a pan, or steel flight, feeder, rising at an inclination of about 30 degrees. The crusher in turn discharges to the lower end of a 24-inch belt conveyor, also having a capacity of 110 tons per hour when driven at a speed of 250 feet per minute. This conveyor, which is some 450 feet in length, is inclined until the carrying belt reaches an elevation of about 40 feet and then runs horizontally, the last couple of hundred feet extending over the overhead coal bunkers in the boiler house. All equipment from the dump house to the monitor housing the conveyor over the coal bunker is enclosed in a steel gallery of substantial and dust-tight design.

At the lower end of the conveyor where it issues from the dump house, an automatic weightometer is provided to measure the coal as it is delivered by the coal crusher and while being carried to the service bunkers, the weighing being consummated while the coal is in transit on the belt conveyor. Over the storage bunkers in the boiler house, the belt conveyor is furnished with an automatic distributing tripper by which the coal is discharged to the bunkers where and as required.

In the handling of 110 tons of coal an hour, including the operation of the coal crusher, the power demands in the aggregate are well below 70 horsepower, the motor complement being a 7½-horsepower unit for the pan feeder, a 40-horsepower motor for the operation of the coal crusher and a 25-horsepower motor for driving the belt conveyor, including the operation of the automatic discharge tripper. Furthermore, very little labor attendance is entailed in running the system and maintenance of equipment has proved a minor expense item. In fact, it is said that the Warren Company anticipates an annual saving in labor and maintenance expense burdens, as compared with those pertaining to its old method of coal handling, amounting to about $15,000.00. This quite substantial sum does not cover, of course, the intangible but nevertheless extremely valuable results derived from freeing the atmosphere about the paper mill of coal dust.

To handle the very large amount of coal required for assuring the uninterrupted operation of the Hamilton mills of the Champion Coated Paper Company, a system of belt and flight conveyors and a bucket elevator is employed which well exemplifies the adaptability of such equipment. Also, the facts that the daily coal demands for the boiler plant run well up into the hundreds of tons and that all the coal has to pass over the system is a very conclusive indication of the reliability of the system.

A commodious overhead coal bunker extends virtually the full length of the boiler house and to insure adequate coal should any interruption or delay interfere with the daily train loads of coal from the mines of the company, accommodations for large emergency fuel supplies are provided in the storage yard adjacent to the boiler house. This coal reserve is also handled by the conveying and elevating equipment servicing the coal bunker, both to and from ground storage, imposing even greater need for a coal handling system of extreme ruggedness and dependability.

The hopper-bottom coal cars, as they arrive from the mines, are discharged into a 14 x 12 foot track hopper located just outside the power plant building. From this hopper, the coal is drawn by a horizontal 30-inch apron feeder and delivered into a double roll coal crusher. The crusher in turn discharges through a hopper and chute onto a 30-inch inclined belt conveyor which feeds the main gravity discharge bucket elevator.

This short feeding belt conveyor, 10-foot centers, is equipped at the head end with a magnetic pulley, the function of which is to pick out any tramp iron which might otherwise be carried to the coal bunker and subsequently find its way to the stokers. It discharges onto the lower run of a rather unusual form of gravity discharge bucket elevator, the buckets of which rise and descend in a path paralleling the end wall of the boiler house, instead of the usual arrangement where the path of the elevator buckets lies in a plane normal to the railroad tracks. The two vertical runs of the elevator are separated by a distance of several feet, providing short horizontal runs at bottom and top of the elevator. The lower of these short horizontal sections receives the coal discharged over the end of the magnetic pulley feeding conveyor, so loading the main elevator. The elevator buckets in their horizontal travel act much like the flights of a scraper conveyor, picking up their individual loads as they pass about the lower sprockets and commence their upward travel. The upper of the short horizontal elevator runs serves as a positive discharge section, delivering the coal to a horizontal 24-inch belt conveyor, 175 feet in length, running over and serving the large overhead coal bunker in the boiler house.

This bunker conveyor is equipped with an automatic traveling tripper which discharges and distributes coal into the large service bunker of the boiler house. Near the loading end of this same distributing conveyor, in proximity of the elevator, is a spout to which the crushed coal raised by the elevator may be delivered. This spout delivers to a horizontal 20-inch belt conveyor, some 80 feet in length, which runs at right angles to the bunker conveyor out over the yard to a tower from which it discharges to ground storage.

Under the reserve coal pile thus formed by the storage conveyor, an 18 x 8 inch flight conveyor, also about 80 feet in length, leads back under the boiler house and in reclaiming the stored crushed coal this flight conveyor delivers to a 20-inch inclined reclaiming belt conveyor. The latter deposits the reclaimed coal upon the 30-inch magnetic pulley belt conveyor which feeds the main elevator and the coal from the outside storage is placed in bunker storage without again having to pass through the crusher.

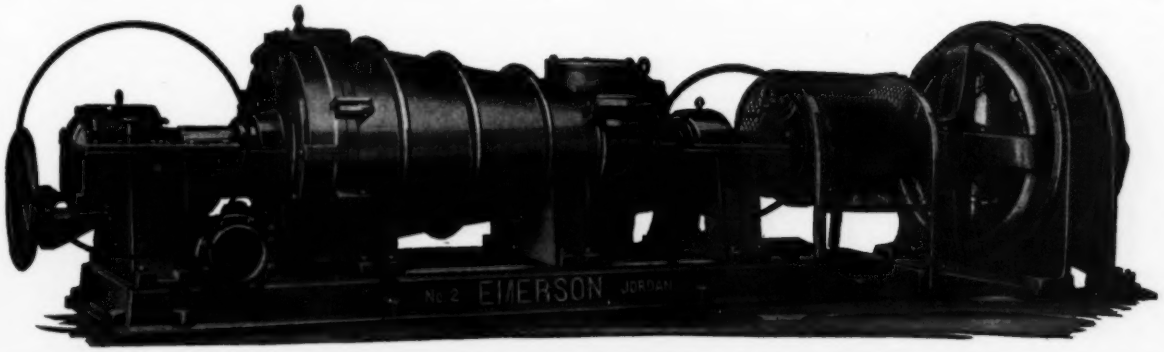
In presenting these three examples of coal handling systems employing equipment which handles the coal in a more or less continuous stream, installations sufficiently different, both as to capacity and arrangement, have been selected in order to give some proper idea of the adaptability of standard material handling apparatus in meeting diversified conditions and also to emphasize the oft repeated statement that virtually every coal handling system installation presents an individual engineering problem.

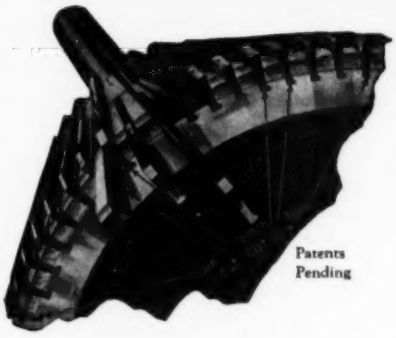
PRINCIPAL COAL HANDLING EQUIPMENT—
CHAMPION COATED PAPER CO.

1—steel track hopper.
1—30-in. apron feeder, 9 ft. 6 in. centers.
1—30-in. magnetic pulley belt conveyor, 10 ft. centers.
1—20 x 20 x 13 in. bucket gravity discharge elevator, 66 ft. vertical centers, 7 ft. horizontal centers.
1—24-in. bunker belt conveyor, 175 ft. centers, equipped with automatic traveling tripper.
1—20-in. storage belt conveyor, 80 ft. centers.
1—18 x 8 in. reclaiming flight conveyor, 80 ft. centers.
1—20-in. reclaiming belt conveyor, 27 ft. centers.
Miscellaneous spouts, braces, structural work, etc.

Courtesy: Stephens-Adamson Mfg. Co.

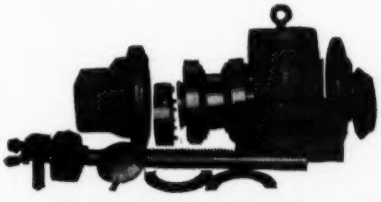
The EMERSON JORDAN *equipped with the* Bolton **BANDLESS** Plug





Patents Pending

Showing construction of the Bolton Bandless Plug. Knives and woods cannot come out. *NOTE INVERTED EDGES.*



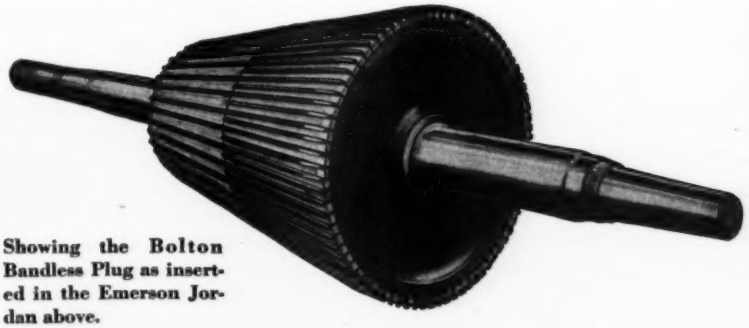
Detail of Timken end bearing which takes care of both radial and thrust.

Now every Emerson Jordan offers you the tremendous advantages of the Bolton BANDLESS Plug and Timken Roller Bearings.

These two great features put the Emerson Jordan in a class by itself for unit control, lasting satisfaction and true economy. No other Jordan has these great construction advantages.

Make sure of all the benefits and savings that result from these two wonderful improvements in Jordan engineering. Standardize on Emerson Jordans.

Write for full information and estimates



Showing the Bolton Bandless Plug as inserted in the Emerson Jordan above.

The EMERSON MANUFACTURING COMPANY

LAWRENCE ∾ ∾ ∾ MASSACHUSETTS

DIVISION OF JOHN W. BOLTON & SONS, Inc.

2683

PAPER TRADE JOURNAL
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A BIG CHEMICAL EXPOSITION ASSURED

Modern chemical engineering practice today reaches into every field of industry, carrying a message to each and every branch. The practices of chemistry and chemical engineering have, through constant research, brought American industry to the point where it leads the world in output, and capital invested. Consider rayon for example—a rayon plant in a new industry requires a minimum investment of $3,500,000.00 of capital. The chemist and chemical engineer have brought rayon to its high standard of today, and yet the investment of capital is small compared to the entire industry.

Since the Eleventh Exposition of Chemical Industries in the fall of 1927 many new processes have been developed with much new machinery and equipment for use in the chemical and allied industries. These new practices and processes have done much toward increasing the scope and markets, both domestic and foreign, for both raw and finished products along with the most advanced methods of handling. The country is fully awake to the greatness of the industry and sections of the country are constantly making bids for various branches of the industry. The railroads in some sections maintain specialists in their Industrial Bureaus who study the trend of the chemical industry from the standpoint of the production from raw to finished products and the markets for these products. This is done with the idea of locating industry on the railroad line and while done from a purely selfish motive, this research is of much benefit to the nation and industry as a whole and has helped to cement a stronger foundation for the chemical industry which the railroads have been quick to take advantage of for development of resources along their lines.

As an aspect of this it is interesting to note that a number of railroads will be represented at the Twelfth Exposition of Chemical Industries which will be held at Grand Central Palace, New York City, the week of May 6, 1929. The exposition will draw chemists, chemical engineers, manufacturers and others interested, from some forty industries which are dependent in their operations upon chemical changes in the material, or are under chemical control. Many new products as well as equipment will be shown for the first time.

The interest that is being manifested at this early date indicates a greater number of exhibitors than ever before in the history of the Exposition. One of the most important dates will be Export Day, May 9. On this day the exhibitors will be especially prepared to meet the foreign visitors and discuss with them their products in detail and the problems of the foreign representatives.

The exposition management is rapidly completing the various programs that will be effective during exposition week. The chemical industries banquet in which some fifteen to twenty organizations join will be held on Thursday evening of exposition week. At this time everything indicates a greater turn out of exhibitors and visitors than ever before for a Chemical Exposition.

HOW TO GROW MORE PULPWOOD

A forestry experiment under way for more than twenty years now has demonstrated an effective means of increasing the growth of pulpwood, says the Forest Service, United States Department of Agriculture.

As a result of the far-sightedness of the forester who started this experiment in 1907, pulpwood operators in the Northeast now can have some preliminary information on the yields to be expected through the practice of girdling hardwoods which are overtopping the spruce.

It takes time to get results in forest research, says the Forest Service. In his forestry experiments, the forester frequently deals in decades. Twenty-two years ago at Corbin Park, New Hampshire, the Forest Service established three sample plots in a stand of old hardwoods. Under these hardwoods young red spruces about the size of small Christmas trees were struggling for existence. Spruce is a valuable tree in New England, since it is the principal wood used by the paper mills. One of the plots was left intact as a check, but on the other two the hardwoods were killed by girdling in order to give the young spruces more light and growing space. Every five years since, the trees have been measured to determine the rate of growth.

The Northeastern Forest Experiment Station has just completed an analysis of the growth on these plots. It was found that volume growth on the heavily girdled plot has been more than five times as rapid as on the plot which was not girdled. On the moderately girdled plot growth was three times as rapid. The heavily girdled plot has produced approximately 10 cords of pulpwood per acre in 22 years.

It will take another 25 years, however, before the timber crop on these plots is ready for harvest, and the experiment is completed by still another generation of foresters.

PAPER MILL EMPLOYMENT

There was a slight increase in employment in paper and pulp mills in January as compared with December while there was a slight decrease in employment and a decrease in both employment and payrolls in the paper box industry according to the Bureau of Labor Statistics, Department of Labor, at Washington, D. C.

Reports were received by the Bureau from 213 paper and pulp mills which gave their December employment at 59,003 increasing slightly in January to 59,253 an increase of 0.4 per cent. The payrolls in these same mills, on the other hand decreased from $1,618,411 in December to $1,598,150 in January, a decrease of 1.3 per cent.

Stream Pollution Committee Meets

The Advisory Committee on waste disposal of the Wisconsin Pulp & Paper Industry met with representatives of the Wisconsin State Board of Health and Railroad Commission in Milwaukee February 1 to review the cooperative program of 1928 and to make plans for 1929.

Conditions of Wisconsin streams in 1928 were reported as considerably improved, due mostly to the large amount of rainfall. Plans for 1929 include a survey of the Rock River and the Wolf River. As a means of control against future fish mortality due to low water and pollution, it was agreed to establish control stations at designated points on all rivers where trouble is likely to occur. When analysis of the water at these control stations indicates that a condition is being approached where the river will not sustain fish life, action will be taken to let down more water, or otherwise alleviate the situation until the crisis is past.

Other phases of pollution and problems connected with plans for 1929 which were discussed included:

1. The effect and efficiency of periodic flushings of streams on maintaining fish life during critical periods.
2. A standard laboratory method for determining fiber in white water.
3. Research in progress on waste sulphite liquor.
4. Research done last year on de-inking wastes.
5. Work on sulphate process lime sludge disposal.

The meeting ended by passing a resolution recommending that every mill in the state make a white water survey in 1929, and asking the cooperation of the Forest Products Laboratory where preliminary help is needed.

Crown-Willamette Plans Expansion

A report from Camas, Wash., March 2, states that more than $3,000,000 is expected to be spent on the paper mills which the Crown-Willamette Paper Company now operates in that town, the development program to start within a few months, the construction proper to consume probably a year or more.

Additions to present buildings, erection of new buildings, the installation of new machinery and improvement of old equipment is included in the plans. Construction of a large bleached sulphite plant, addition of at least one more paper making machine with general improvements on the others; substantial addition to the sulphite digester equipment; construction and equipping of a converting plant for paper towels and similar products; addition to the present beater room; an added hog fuel boiler and major repairs to the present boiler plant; construction of a new wood mill; additions to the pumping and filtering equipment for the mill water supply and the addition of a dozen or more high speed bag machines are the outstanding improvements mentioned.

When these features have been completed the plant will be one of the finest in the country as well as one of the largest specialty paper properties. The program is outlined with the idea of increasing the production of high grade kraft and sulphite papers. The construction and engineering work is to be handled by V. D. Simons company, Chicago, engineers who have planned and built new paper mills at other points in Washington, including Shelton, Hoquiam, Port Townsend and Port Angeles.

Bryant Paper Co. to Pay Quarterly

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 11, 1929.—The payment of monthly dividends by the Bryant Paper Company has been discontinued, according to an announcement made by the directors, and in the future dividends will be paid quarterly, the dates being January 1, April 1, July 1 and October 1. When the Bryant Paper Company began operations in 1895 the policy of paying monthly dividends was adopted and has since been continued. The prevailing rate has been one per cent a month, with extras during the years of special prosperity. Common stock is now on a six per cent annual basis and the payment of 1½ per cent quarterly dividends is authorized.

The annual statement as of December 31, 1928, shows gross assets of $9,481,176.33. Current assets are $3,158,184.06 against current liabilities of $560,418.84. The fixed assets are placed at $6,322,992.07. There are oustanding at this time common stock, $5,000,000; preferred stock, $300,000; bonded indebtedness, $2,156,400. The surplus is $1,067,890.25. Total sales during 1928 were $7,612,124.54.

Felix Pagenstecher, president, in a statement to stockholders, calls attention to the fact that expenditures for improvements since the first bond issues amount to $3,427,776.06, or $927,776.06 in excess of the total bonds for such betterments. He adds: "Our engineers' estimates show that we could make a very good return on further expenditures for necessary improvements in the Bryant division. Consequently the board of directors is considering plans for carrying out these recommendations. Every means of reducing productive costs places the company in a better position, under any condition of the market."

Minas Basin Plant Begins Operations

TRURO, N. S., March 11, 1929.—The Minas Basin Pulp and Paper Mills, Ltd., has commenced operations in their newly constructed mill for the manufacture of groundwood pulp for the export market. They will also supply Windsor, Hantsport, Wolfville and other important towns at the base of the Annapolis Valley, with power and electric lights. The machinery in the new plant is the most up-to-date on the market and the plant has a capacity of forty tons of pulp a day. The company is blessed with large holdings of timberlands all along the Dominion Atlantic Railway and on the shores of Minas Basin. Among the directors are the Hon. Albert Parsons, Speaker of the Nova Scotia House of Assembly, and J. L. Illsely, M.P., for Hants-Kings. A new dam has just been completed on the Avon River, which is furnishing the power for the new pulp mill, and a new power plant and also a new electrical plant for the company has been constructed at Fall River. The new plant will employ over 150 men and is a boon to this section of the Province.

Ways and Means Representatives Visit Mills

UTICA, N. Y., March 11, 1929.—Congressman Frederick M. Davenport with other representatives of the Ways and Means Committee will visit this city the latter part of March on a tour of inspection of prominent paper and other manufacturing factories of the district. The party left Washington during the past week and plan to visit all of the important mills of the country. They are responsible for the existing paper tariff schedules. The first leg of their journey will take them through North and South Carolina. After the inspection here the party will go to New England to visit plants in that territory. During the tariff hearings the committee has listened to several hundred witnesses and sub-committees have been given this testimony. Later the sub-committees will report to the Committee on Ways and Means as to the proper rates of duty.

Waste Material Convention Plans

The sixteenth annual meeting of the National Association of Waste Materials Dealers, Inc., will be held at the Congress Hotel Chicago, on Wednesday, March 20, at which time there will be elected a president and fifteen directors. Meetings of the various divisions of the association will be held on Tuesday, Wednesday and Thursday, March 19, 20 and 21.

The sixteenth annual banquet will be held in the Gold Room of the Congress Hotel, Chicago, on the evening of Wednesday, March 20. The committee is not making public all of its plans, but it is known that a substantial sum of money has been subscribed by Chicago members to provide special features, which undoubtedly will have much to do with making the affair a real success.

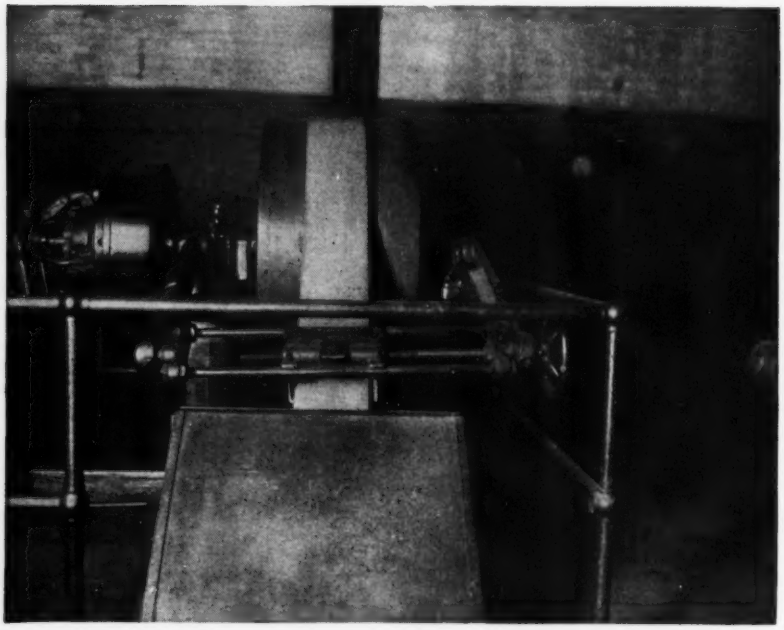

Photo shows a sectional cone drive in a board mill. Highflex belts, because of their remarkable construction principle, are breaking all records on paper mill cone drives. See article below

Highflex belts reduce costly shut-downs resulting from stretch and slipping

BECAUSE the shafts in paper mill cone drives are fixed, it becomes highly important to have a belt with minimum stretch. Owing to their unique construction principle, Goodrich Highflex belts are proving themselves an ideal belt for sectional cone drives.

Highflex belts have excess stretch removed during the process of manufacture. Finished Highflex belts, under tests, show a minimum of inelastic stretch and just enough elastic stretch for proper shock absorption.

The low factor of stretch in Highflex belts, therefore, reduces the frequent —and costly—shut-downs resulting from slipping of old-type belts.

As a result of this feature, Highflex belts also possess a higher power capacity, and last longer. Highflex belting, now running on scores of sectional drives, is breaking all records for length of service before shortening becomes necessary.

The square edges of Highflex belting, because foldless, present a better wearing surface against shifters, and prove their economy through greater immunity to rupture.

Highflex belting is carried in stock in the following sizes especially designed for cone drives: 6″ 6 ply; 8″, 10″, 12″, 14 .5″ and 18″ 7 ply; as well as 10″, 12″, 14″ and 16″ 8 ply. Cone belts are also made to order in thicknesses up to 10 ply. Some mills have successfully adapted endless Highflex belts, with idler pulleys, to sectional drives.

We will gladly send catalogue 2105 on Highflex belting. Write to The B. F. Goodrich Rubber Co., Akron, O. (in the West, Pacific Goodrich Rubber Co., Los Angeles, Cal.), or fill in the coupon below.

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Akron, Ohio (In the West, Pacific Goodrich Rubber Co., Los Angeles, Cal.).

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Report on Physical Standards for Pulp*

By H. A. Rothchild[1], Chairman

The committee has only one project under way and plans to undertake no other project until that one is completed. The work under way is to determine a method for evaluating pulp so that its papermaking properties may be determined by this method or test.

A method for initial strength testing of pulp was developed previous to 1927 and proposed for adoption, but a survey of the industry showed that the equipment for testing pulp in the various mills is so varied, involving as it does disintegrators, beaters, etc., that a universal adoption of the initial strength method as the one method for testing of pulp for papermaking properties could hardly be hoped for.

The present committee has therefore been working on the basis of finding a relationship between the principal methods at present in use for testing of pulp.

Three samples of bleached sulphite pulp, having three different values so far as papermaking properties are concerned, have been sent to each member of the committee for testing and evaluation.

An abstraction of the results of tests on these pulps, and the relative evaluation of them as figured from the tests, are given below. The valuations given are figured, in some cases, according to the empirical method used in the mill making the test and in other cases by the author from the results reported by the mill.

Name	Pulp Sample	Untreated Mullen	Untreated Elmendorf	Valuation	Lab. Processed Mullen	Lab. Processed Elmendorf	Valuation
D. E. Cable (Oxford)	A	72.9	125.9	100	85.2	134.4	100
	B	62.5	130.5	94	70.0	138.1	90
	C	51.8	101.6	75	59.3	98.4	70
H. W. Laymon (Mead)	A	64.0	149	100	85.0	152	100
	B	56.0	149	96	76.0	147	94
	C	45.0	128	81	65.0	118	77
H. A. Rothchild (Kimberly-Clark)	A				45.0		100.0
	B				33.6		73.4
	C				29.6		65.5
H. U. Kiely (American Writing)	A				110.9		100.0
	B				91.6		71.5
	C				70.0		63.0
G. P. Genberg (Fraser Cos.)	A	81.0	117	100	78.0	110	100
	B	68.0	112	89	65.0	95	85
	C	64.0	94	79	48.0	66	61
I. Lundbeck (Lee Paper)	A				1.71		100
	B				1.37		80
	C				1.17		68
C. C. Schneider (Hawthorne)	A				0.90		100.0
	B				0.60		65.7
	C				0.46		51.0
P. K. Baird (Forest Prod. Lab.)	A		66.4		30.2	55.2	100.0
	B		71.2		21.4	42.4	71.0
	C		53.6		19.5	35.2	64.5

* Presented at Annual Meeting of TAPPI, New York, Feb. 19, 1929.
[1] Chemical Engineer, Kimberly-Clark Corp., Neenah, Wis.

Cooperative Tests

A study of the results of these intermill and intercompany tests on the same pulps, brings out the pertinent fact that regardless of method of testing all parties graded the three pulps as "A"—1st, "B"—2nd, and "C"—3rd. Less pertinent but, nevertheless, interesting is the proportional evaluation of the pulps by committee members using different methods of testing. Laymon and Genberg rated "B" and "C" proportionally higher in comparison to "A" than the other members who beat or hydrated their pulps before testing. If these two committee members had evaluated these pulps from their beaten strength tests their results would have conformed closely to the other results. As for example, Genberg's evaluation on his beaten strength results would be as follows:

"A"	"B"	"C"
100	85	61

As regards the three samples of pulps (the nature of which was unknown to committee members at the time of their tests), "A" was a fairly good bleached balsam pulp, "B" a fairly good bleached hemlock, and "C" a bleached hemlock taken from a batch which had been ruined in the bleaching process. "A" and "B" were of the type that has proved out in the paper mill, that they make good book paper ("A" better than "B"), while "C" was so rotten it was impossible to use. All of the mills cooperating in the testing obtained results which would have enabled them to distinguish between these pulps, but those mills obtaining the greater difference between 'B" and "C" get evaluations more nearly approaching actual papermaking value to the operator.

Many Independent Methods

One of the problems suggested for TAPPI at its original organization some fifteen years ago was to work out a method for evaluating pulp for paper making. Since that time a number of methods and variations of methods have been proposed, until at the present time nearly every mill has a method of its own, each varying, more or less, in equipment and procedure from every other one. Also, our experience in meetings has shown us that each member thinks his method is better than any of the rest, and he is unwilling to change his method.

To this impasse had come the reports of the committee to adopt a standard method, when the comparative testing of pulps "A." "B" and "C" apparently showed a way out. If various mills using various methods, obtained the same comparative valuation on given pulps, why not follow up this lead to bring all the mills

together on evaluation of pulp for papermaking, regardless of methods of testing. This, the committee decided to do at the last meeting in Wausau.

Standard Pulp To Be Chosen

A lot of a standard pulp is to be chosen and a sample of this pulp sent to each cooperating mill. This standard pulp will be given an arbitrary valuation of 100. Then any unknown pulp would be tested by the method peculiar to the individual mill, and the standard pulp tested by the same method and a valuation given the unknown pulp accordingly. For example, if the mill tested the standard pulp as 48 and the unknown pulp as 43, then the valuation of the unknown pulp would be $\frac{43}{48} \times 100$ or 89.6. Likewise another mill by its own pet testing method would presumably get a test of 180 on the standard pulp and 160 on the unknown pulp and its valuation of the unknown would be $\frac{160}{180} \times 100$ or 89.6 also. In this way various mills with various testing methods could express the valuation of a pulp in common terms intelligible to each other.

Will Be Sent to Committee Members

This standard pulp together with a number of samples of unknown pulps will be sent to committee members in the near future, and if results prove as anticipated, a recommendation will be made to the Technical Association.

Report of the Committee on Roofing Felt and Paper Board

By P. W. Codwise [1]

The work of the Committee on Roofing Felt and Paper Board this year included a survey of test methods for Roofing Felt and an outline of the field for the Committee on Paper Board.

The activities of the paper board sub-committee will be presented in detail by C. C. Heritage.

As a contribution upon roofing felt we are submitting, at this time, a report of cooperative work in the testing of roofing felt by the Committee in which we believe the field has been covered with reasonable thoroughness. This is to our knowledge the first published data showing the relations of the various tests for this product.

Recent Developments

Recent developments from the standpoint of felt mill operations include increased interest in continuous beater systems with the object of effecting economies in beater room operation; interest in the application of chlorine to the stock for the purpose of eliminating slime formation; and the reuse of white water through closed systems for the purpose of reducing the shrinkage losses in such mills.

Gurley Densometer

A recent suggestion in the field of roofing felt testing is the application of instruments for the determination of the porosity of the sheet, such as the Gurley densometer. The thought behind this is that such an instrument may give an indication of the saturating characteristics. This is a subject for further investigation but as a matter of interest we are including the densometer figures in our tabulation of felt testing results.

Literature of the Past Year

The literature upon roofing felt during the past year has included the following: An article entitled, "Increasing the Capacity of the Elmendorf Tearing Tester," by F. T. Carson and L. W. Snyder appeared in the Paper Trade Journal for March 29, 1928; it is stated that this work was done in order to more accurately test the tearing resistance of various roofing felts; in our tabulation of felt testing results figures as obtained with this modified instrument are included. The following tests for saturating characteristics of roofing felt have been published or are presented herewith: "The Oil Penetration Test for Roofing Felt," Paper Trade Journal, March 1, 1928; "The Kerosene Test for Roofing Felt," Paper Trade Journal, September 20, 1928; "The Xylol Test for Roofing Felt," which is being presented herewith. In the 1928 Yearbook of Tentative Standards of the American Society for Testing Materials, page 581, there is published a proposed method for "Analysis of Roofing Felt for Fiber Composition." Although this investigation of the A. S. T. M. is not yet completed it has brought out some interesting points with regard to the fiber analysis of roofing felts.

[1] Member TAPPI, Buffalo, N. Y. Chairman Committee on Roofing Felt and Paper Board.

Yankee Paper Machine Dryer Surfaces

Special Inquiry No. 121

A member writes: "We would like to find out from men in mills operating Yankee machines, some reasons for the formation of dull places or 'pox' marks (as they are sometimes called) on the glazed or M. G. side of the sheet. These spots vary in size.

"Is this due to the heat from the drier, the treatment the stock has had or is it due to the presence of dirt (possibly alum or size) that may collect on the drier? Since we use but a small amount of size the trouble can probably not be attributed to sizing.

"We should also like to know whether or not steel doctors keep the drier in better condition than bronze blades are whether there is any danger of injury to the drier surface when steel blades are used. What degree of hardness of bronze blades in general is used and at what angle to the drier surface is the bronze doctor usually set? Should the blades be sharp or blunt at the working edge?"

Replies to this inquiry should be sent to the Secretary of TAPPI, 18 East 41st street, New York. A complete transcript in blank, of all the replies received will be sent to all who contribute information relative to this inquiry.

R. G. Macdonald, Sec. TAPPI,
18 East 31st street, New York

Wherever Wheels and Shafts Turn

"Wherever Wheels and Shafts Turn" is the title of the latest publication issued by the Timken Roller Bearing Company, of Canton, Ohio. This ambitious work is attractively bound and profusely illustrated. While it covers the general subject of the application of Timken Bearings to all sorts of automotive, railway, and industrial equipment in some detail, there are sections relating specifically to applications in which the paper industry is particularly interested.

The first part shows how universal Timken Bearings have become in every kind of equipment—how they have effected radical savings wherever wheels and shafts turn throughout industry—how they can do the same in all the equipment in the plant. The second part contains technical information on bearing mountings and installations, which is of important value to engineers.

Method of Testing Clay, Talc and Agalite

By D. D. Uong[1]

Clay is a hydrated aluminum silicate of the probable formula $Al_2O_3 . 2SiO_2 . 2H_2O$, resulting from the weathering of feldspathic minerals.

Talc is a hydrated silicate of magnesium, and agalite or asbestos is a fibrous silicate of magnesium.

The tests that follow can be applied to clay, talc and agalite.

Sampling

If the material is in bags or barrels, 10 per cent of the packages should be sampled. If in bulk, a quantity of not less than 10 pounds to a carload should be taken at regular intervals during unloading. The sampled clay should then be mixed and quartered down to a volume of two quarts.

Procedure

Color

Clays should be dried at 105 degrees C. before comparing color. Place a small amount of the standard clay and a like amount of the sample in question on a sheet of black paper, press down both clays with a polished stainless spatula to make a smooth surface, place side by side, and compare. A difference in color can easily be seen.

If it is desired to compare the color when the clay is wet, make a paste of the clay with distilled water and place the plaques in a wooden block. (Sutermeister's Chemistry of Pulp and Paper Making, page 302). The color can be compared wet, and then after drying at 105 degrees C. can be compared dry. Several clays can be run at the same time when using these blocks.

If it is desired to know how much the color of a clay can be improved by blueing, rub up the clay with a little ultramarine in a mortar and then compare the color with an unblued portion of the clay.

Detection of Artificial Coloring

In one of two similar white porcelain dishes place a measured amount of freshly prepared saturated lime water and in the other an equal volume of distilled water. To each dish add equal amounts of the clay in question by dusting a little at a time from the end of the spatula, let stand a few minutes, siphon off the excess liquid, and compare colors of the moist clay in the two dishes. If the clay has been blued the lime water removes the blueing, and the color of the portion of clay which has been treated with lime water is quite different from the color of the portion treated with distilled water. When the clay contains no artificial color, the color of the residues in the two dishes is the same.

Disintegration

Place a few lumps of clay in water and allow to stand without agitation. A good clay will soon commence to disintegrate, and in a short time the lumps will disappear entirely and on stirring will produce a smooth, homogenous cream. In the case of a clay that does not disintegrate well, there will be found small pellet-like particles which can only be broken down by rubbing between the fingers. This indicates that the clay will cause difficulty in its preparation for use.

Grit

(a) Sieve Test: Place 10 to 20 grams of clay on a 200 mesh sieve and wash with a slow stream of water until the water leaving the screen is clear. Break up hard lumps of clay with a policeman, taking great care not to use anything harder so that particles of grit are not broken up and passed through the screen. Dry and weigh the portion remaining on the screen, and report as percentage on a 200 mesh sieve. Examine the dried grit microscopically, noting the presence, color and proportion of both mica and quartz.

(b) Elutriation Test: (The Manufacture of Pulp & Paper, Volume IV) A 10 gram sample of the filler is placed in a glass cylinder 11¾ inches high and 1⅝ inches in diameter, which holds 400 cc. The filler is thoroughly disintegrated before being introduced into the cylinder. Fill up the cylinder with water. From a large bottle, 58 inches above the bottom of this glass cylinder, 2,500 cc. is allowed to pass through the cylinder from a glass tube, ⅛ inch in diameter, extending to the bottom of the cylinder. This residue is then filtered through a tared gooch crucible, dried and weighed. The temperature of water used in this test should be 80 degrees F.

Adulterants

Presence of calcium carbonate is indicated by effervescence on treating sample with warm dilute hydrochloric acid, and presence of calcium in the filtrate.

Presence of calcium sulphite is indicated by testing for calcium and for sulphates in the filtrate from the treatment with warm dilute hydrochloric acid.

If it is suspected that the clay contains other fillers, such as barium sulphate, or that it is not true china clay (hydrated silicate of aluminum) a fusion with sodium carbonate should be made and the subsequent abstractions with water and acid examined for their constituents.

Water Formation

Burn an accurately weighed quantity of filler, about 2 grams, in a tared crucible. Cool it in a desiccator and weigh.

Iron Oxide

Digest 2 grams of weighed sample with 10 cc. chemically pure concentrated hydrochloric acid in a 100 cc. beaker for one hour. (The Manufacture of Pulp and Paper, Volume IV). Filter it and wash with 75 cc. of hot water. Pour the filtrate and washings into a 100 cc. Nessler tube, and add a few drops of a N/10 potassium permanganate solution, to be sure that the iron is oxidized to the ferric condition. The color of $KMnO_4$ should persist for at least two minutes. Add 10 cc. of 2 per cent KSCN solution, make up to 100 cc. and shake the tube thoroughly. Compare immediately the resulting color with a standard that has been prepared at the same time, by adding a standard iron solution (ferric sulphate) (1 cc. = 0.00001 gram Fe_2O_3) to another Nessler tube, which contains two or three drops of $KMnO_4$, 10 cc. of KSCN solution, and 85 cc. of H_2O, until the same color is produced in both tubes. The number of cubic centimeters of ferric sulphate used multiplied by 5 gives the parts of Fe_2O_3 per million. Ferric sulphate is best prepared by dissolving 1 gram of pure iron wire in a small amount of H_2SO_4, oxidizing this with N/10 $KMnO_4$ and making up to 100 cc. This solution may be diluted to any concentration.

Fineness

Weigh one gram of clay filler into a 100 cc. beaker containing 25 cc. of water at 80 degrees F. and thoroughly disintegrate it with the help of a policeman rod. Transfer this mixture quantitatively into a 50 cc. Nessler tube, fill the tube to the mark with H_2O at 80 degrees F. With thumb over the opening invert the tube several times, and then shake it vigorously for a couple of minutes, so as to insure a thorough disintegration. Let the tube stand vertically in a quiet place for 15 minutes, at the end of which period, measure the height of the settled column of filler in millimeters. The higher the settled column of filler, the finer the filler.

This is a simple and convenient method for determining the

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[*] Presented at Annual Meeting of TAPPI, New York, Feb. 20, 1929.

[1] Member TAPPI; Chief Chemist, Fitchburg Paper Co., Fitchburg, Mass.

fineness of filler quantitatively. This method depends partially on the principle of the following formula for rate of settling of solid particles in a fluid medium: (Principles of Chemical Engineering, by Walker, Lewis and McAdams.)

$$V = k\sqrt{\frac{D\ (S-s)}{s}}$$

Where k is a constant depending upon the shape of the solid, D the diameter of the solid particle, S the specific gravity of the particle, and s, the specific gravity of the medium.

In almost every case, this method is supported by microscopic examination and by centrifugal tests.

Colloidal Property

Insert a small metric measuring stick, at the lower end of which is attached a ring of platinum wire of 0.023 inch diameter, into the filler mixture in the Nessler tube, immediately following the Fineness Test. The diameter of the ring should be 8 millimeters. Lower the measuring stick gradually until the platinum ring is out of sight, viewing from top of the tube. Take the reading in millimeters. The colloidal property is inversely proportional to the number of millimeters. Colloidal fillers are not always fine.

This colloidal property has hitherto been generally considered as an essential quality of filler. The writer has, however, had experiences that indicated the contrary was true.

Fine, but non-colloidal clays, have been found to be excellent fillers, both in retention and in producing smooth surface. In coating processes, this property is rather important.

Retention

Since this test is relative, and involves so many factors in the manufacturing process, it is best determined in the laboratory where every factor can easily be controlled and duplicate runs can readily be made.

Moisture Content of English Coating Clays*

By R. M. Cobb and Donald V. Lowe[1]

Discussion of a previous paper dealing with coating clays' indicates that the moisture content of clays as shipped, received, and used is of great interest. In this brief investigation, it has been found that the moisture content of a clay is a function of relative humidity conditions, and that at 25 deg. C. and 100 per cent R. H. the average imported clay will hold only 8-9 per cent water. Because the plea of the shipper has always been that high moisture content on delivery is due to moisture in the sea air or air in the ship's hold, it is indeed surprising to find that if stored at 100 per cent R. H. English clay dries out very quickly. Reference to the literature, however, discloses that this is no hitherto undiscovered phenomenon, and confirms the statement of Brunetiere that the greatest undiscovered sources are the things which have been printed and that no one reads.

In two articles on humidity control, Wilson et al[2] have shown that definite conditions of relative humidity may be obtained by the use of sulphuric acid water mixtures. They have applied this principle in determining, among other things, the moisture content of two substances similar to clay, kaolin and kieselguhr. At 90 per cent R. H., above which no determinations were made, kaolin holds 1.25 per cent moisture, kieselguhr 3.25 per cent.

For the present work, two samples of clay containing 1.25 per cent moisture were allowed to come to equilibrium with an atmosphere of 100 per cent R. H., obtained by placing water in the bottom of the dessicator in which the clay was stored. They were then successively submitted to an R. H. 80 per cent, 60 per cent, 35 per cent and 0 per cent, obtained with the following sulphuric acid solutions:

TABLE 1
RELATIVE HUMIDITY SOLUTIONS

Per cent relative humidity	Molal per cent sulphuric acid	Grams sulphuric acid per liter	Specific gravity
100	0	0	1.00
80	3.3	324	1.198
60	5.1	500	1.295
35	7.2	715	1.503
0	18.7	1830	1.83

Next the samples were dried at 105 deg. C. in an oven, and the dry weights obtained. The dry samples were then sent up the scale of relative humidity, and the per cent of moisture held at each R. H. was calculated on the dry weights.

TABLE 2
MOISTURE CONTENT OF CLAYS AT ROOM TEMPERATURE

Per cent relative humidity	Wet sample (From 100-0 per cent relative humidity)	Dry sample (From 0-100 per cent relative humidity)
0	0.0	0.0
35	0.51	0.45
60	0.67	0.56
80	1.05	0.96
100	7.22	7.10

This indicated that clays gain very little moisture until 100 per cent R. H. is approached, so that if once dried out they will stay dry indefinitely under ordinary conditions.

As a further check, four samples from a shipment of clay just received from England were tested for moisture content, and then submitted to an atmosphere of 100 per cent R. H.

TABLE 3
WET SHIPMENTS

Sample	Original per cent moisture (dry basis)	Per cent moisture at 100 per cent relative humidity 25 deg. C.	Per cent moisture at 100 per cent relative humidity 35 deg. C.
A	14.1	9.7	5.7
B	12.2	9.3	5.4
C	12.7	9.5	4.6
D	11.5	9.3	5.1
A (dried out)	14.1	8.0	4.4

From the fact that clays received from abroad *actually dry out* at 100 per cent R. H., it is obvious that they can not have absorbed moisture in transit unless water were poured on them.

Why Clays Dry Out

When a clay of 14 per cent water content dries out to 8 or 9 per cent at 100 per cent R. H., it indicates that the vapor pressure of 14 per cent water in clay is greater than that of the pure water over which the clay is placed—consequently water distills from the clay until its vapor pressure is equal to that of pure water.

However, the first worker to find that clays lost water at 100 per cent R. H., Washburn,[4] attributes the effect to gravity. He claims to have found that if the water in the closed system is held at a level equal to that of the clay, the clay does not lose water.

Bancroft[5] in a discussion of the moisture contents of gels disagrees with Washburn's views, and says that only if salts were present will gravity enter its effects.

For an explanation of why gels lose water at 100 per cent R. H., Bancroft postulates the occurrence of water in the form of minute drops whose great surface area gives them a surface energy sufficiently great to cause them to distill to pure water with its lower surface energy. For the present we shall have to offer this theory to explain the undeniable fact that water beyond 9 per cent does leave the average English Coating Clay at 100 per cent R. H.

Effect of Drying Out

In comparing two samples of clay which had been dried out at 105 deg. C. with two normal clays no difference could be found in any property, nor was there any evidence that driving off the water injured the coating properties of the clay.

Explanation of Lag

There is a slight but appreciable difference between the amount of water held by a clay which has been sent down the scale of relative humidities, and one which has been dried out to 0 water

* Presented at the Annual Meeting of TAPPI, New York, Feb. 20, 1929.
[1] Member TAPPI; Vice Pres., Lowe Paper Company, Ridgefield, N. J.
[2] Lowe—Technical Association Papers, 8th Series, 1925, page 52.
[3] I. & E. C. 13, page 326 (1921); 14, page 913 (1922).
[4] Washburn—J. Am. Ceram. Soc. 1, 25 (1918).
[5] Bancroft—Appl. Coll. Chem., page 75 (1921).

content and then sent up the scale. Although at first thought one may conclude that the drying has fundamentally altered the absorptive properties of the clay, the work of Van Bemmelen[4] provides a simple explanation for the phenomenon.

In studying silica gel Van Bemmelen dried it out over sulphuric acid water mixtures, first sending to down the scale. On submitting the dried gel to atmospheres of increasingly high vapor tension, he found that the curve was reversible only over the lowest quarter; above the quarter point, the gels had a much higher vapor tension and consequently at the same relative humidity they absorbed less water than before they were dried.

Credit for explaining this phenomenon goes to Zsigmondy,[4] and we can apply his method to the results with clay.

When the clay is comparatively wet, say when it is in equilibrium with 100 per cent R. H., its capillaries are filled with water, and drying involves evacuation of the capillaries. In general, the vapor tension of a curved surface differs from that of a level surface according to the following formula:—

$$P = \frac{d_D \times S \times 2}{d_L - d_D R}$$

P = difference in vapor pressure between flat and curved surface

d_L = density of liquid

d_D = density of vapor

S = surface tension

R = radius of curved surface

When R is negative as in a capillary, there is diminution of vapor tension. The greater the radius of the meniscus, the lower the difference in vapor pressure between the flat and curved surfaces and the lower the per cent of water there must be in the clay to keep it at equilibrium with any given sulphuric acid—water mixture.

It is well known that the meniscus with which a liquid adheres to a dry wall is less curved than it would be if the wall had been moistened before hand. This gives a greater value of R for the dried-out clay, and hence a smaller lowering of vapor pressure and a lower moisture content.

[4] Kruyt—Colloids.

Summary

I. Clays above 9 per cent water content can not have picked up moisture in crossing the Atlantic because clays dry out at 100 per cent R. H. to a moisture content of 9 per cent or less.

II. No injury to coating clays results if they are heated to 105 deg. C. to drive off all water.

III. The difference between moisture content of wet, and previously dried clays at the same relative humidity, results from drying out of the capillaries and increasing the radius of curvature of the liquids in the capillaries.

Sulphite Digester Operation*

By F. Hayward Johnson, Jr.[1]

The sulphite cooking process is fully as important to the success of the pulp and paper producer as any other individual step in the manufacture of paper from wood.

In spite of this fact the actual operation of sulphite digesters was considered for many years as an operation which would function successfully in spite of the many variables involved.

For many years sulphite pulp was made by more or less haphazard methods which produced pulp suited to the individual needs.

However the increasing price of raw materials, together with the demand for a better product, occasioned by a competitive market, have brought about a decided change of methods in most mills.

The development of the present method of sulphite cooking is the direct result of much research work, with a lengthy study of results. Many of the solutions of the problems of variations in wood, acid and steam have come through the application, to commercial mill operation, of the results of laboratory studies. In fact, it has been the development of process to meet the individual conditions of product, as well as those of raw materials.

The study of actual cooking has progressed in the past few years. Results have been tabulated, operations checked, and men have been educated to a higher degree of knowledge of their particular work. The outcome is that we realize now that the operation of our digesters is a very important factor in the cost and quality of our finished product.

In most mills care is used in the wood preparation to produce uniform chips and reduce waste; acid plants which for years were considered as not requiring much attention are regarded with much more interest and even respect; while steam, which was formerly just something to heat our mills with, dry our paper with, and cook our pulp with, has been found to have certain properties which if properly or improperly applied can be made to produce more and better pulp, or be a source of danger to our product.

For many years we have cooked our digesters by means of a single steam inlet in the bottom fitting of the digester. This was, and still is, the standard method of injecting steam into the sulphite digester,—but it has its dangers and, to some of us, appears not to do the work as it should be done.

With the single steam inlet there is the danger of the bottom part of the digester charge becoming heated to a point where the acid is decomposed and some of the chips so affected as to prevent making pulp from them as they come out brown and raw, fit only for screenings.

The point of local overheating is of much greater probability where the steam is "superheated" from sixty to one hundred degrees. So, while it is very desirable to have dry steam for the cooking process, it is the writer's idea that high "superheat" is responsible for more low yield and high percentage of screenings than has been generally accepted.

Multiple Steam Inlets

The method of introducing steam into the digester in several places about halfway up the bottom cone as well as in the bottom fitting, gives better circulation in the digester. Because of the fact that the large volume of steam does not enter at one single place, there is less danger of local overheating with the breaking down of the acid and its consequent detrimental results.

This method was tried some years ago, and is now in successful operation in a number of mills throughout the country (our own mill at Richwood, among them). If properly installed this system gives more uniform distribution of steam within the digester, for although it does not use any less steam, it produces more "number one" pulp and less screenings from the wood furnished.

Further, with the multiple type of steam inlet, or steam nozzle, it is possible to inject steam into the digester much faster, if desired.

The Cooking Schedule

In our mill cooking is conducted so as to follow a predetermined temperature rise, being a curve along the lines of work done by the various members of the staff of the Forest Products Labora-

* Presented at Annual Meeting of TAPPI, New York, Feb. 20, 1929.

[1] Member TAPPI; Sulphite Engineer, Cherry River Paper Co., Richwood, W. Va.

tory. Their recommendation, based on the work done by Messrs. Miller and Swanson, is to come to 110 degrees C. in two hours if possible. We found that using the steam nozzles with a rate of 13,000 to 13,500 pounds of steam per hour, we can come to this temperature in about 2¼ to 2½ hours.

One point that must be carefully watched when bringing the temperature in a digester to 110 degrees C. in 2¼ hours, is that the lower portion of the digester charge is considerably hotter than the upper half, so that the temperature at the recording point (probably ten to sixteen feet from the top of the digester) will continue to rise at too fast a rate. Often where the temperature has been brought up too fast, this rise will go five to ten degrees above the predetermined line.

This condition must be avoided if possible, as the higher temperature will drive off too much of the gas, with a consequent greater dilution of the cooking acid during the latter hours of the cooking schedule.

This condition of too rapid rising of the temperature is more apparent in the summer months when the chip charge, with its 40 percent moisture, is several degrees warmer than during the winter months.

To return to the early temperature rise, we prefer to come to 110 degrees C. a little later than the two hours mentioned previously. This insures complete penetration of any oversize chips, and allows us a margin of safety that can well be used in the later periods of the cook, in preventing too great a consumption of the acid base.

Digester Relief

After reaching this temperature point, the digester is relieved from the top relief iine until five and three-quarter or six hours. At this time, if the temperature and pressure have progressed normally, the relief is changed to the side of the digester. The side relief is continued from here until seven and three-quarters or eight hours, when the side relief is closed and relieving resumed from the top of the digester. From this point on, the relief must be very carefully watched, the reason being that the temperature has reached the point where the "free SO_2" is being driven off from the cooking liquor.

Too fast relief when starting "on gas" will considerably reduce the acid concentration, the temperature will mount much too fast and there will be a rapid decomposition of the cooking acid, occasioned by the free organic acids attacking the remaining base. All of this, if allowed to continue, will cause the cook to come to too early a completion, and weaken the pulp unless the digester is blown. Further, if the base becomes too reduced there will be a tendency to darken the pulp with the possibility of having a "burned" or slightly "burned" cook with a high chlorine figure and a low strength.

To counteract these possible conditions, we relieve our digesters very slowly after first "coming on gas." This holds the gas in the liquor by not allowing the temperature to rise too rapidly.

When our digesters reach 143 to 146 degrees C. temperature (8½ to 8¾ hours) we shut the steam nearly off and commence to relieve at a much faster rate, so that the cooking pressure of seventy pounds per square inch, which we have maintained throughout the cook, is reduced.

This relieving is continued at a rate so that we will have our cook completed in nine and three-quarters to ten hours, at which time the temperature has dropped three to five degrees, while the digester pressure is now about forty to forty-two pounds per square inch.

To consider the "why and the wherefores" of our operation—we are operating our digesters on a rather mixed control principle. Starting off, because of the natural lagging of the temperature recorder, which is placed about twelve feet from the top of the digester, we regulate the steam injection according to the indicated pressure in the digester

This continues until the digester "comes to pressure," from which time the temperature rise is the governing or guiding factor until the maximum temperature is reached, at which time the "reduction" period starts. At this point again the relieving is governed by the indicated pressure, until the blow-off point is reached.

Side Relief

Many men who are well versed in sulphite cooking, do not believe in the advisability of using a "side relief" connection. However, in our opinion, this is a decided asset for several reasons. Chief among them are the facts that, with a side relief properly placed and properly operated, the temperature rise can be controlled by relieving from the side when the temperature begins to approach the critical temperatures, at which the acid decomposition starts more actively. The side relief allows the SO_2 gas, which is driven off from the cooking acid, because of the temperature increase, to accumulate in the top of the digester until such time as the operator wishes to start relieving from the top relief line. By this last mentioned phase, the digester can be kept "on gas" or dry relief during the last two to two and one-quarter hours of the cook. In so doing we get only the dry gas back to the recovery system, and are able to retain the already somewhat decomposed cooking liquor in the digester, rather than to return it to accumulate undesirable conditions in the acid recovery storage system. Again by this last mentioned advantage, we are able to bring our cooking acid to a much higher concentration.

Reduction of Pressure at Completion of the Cook

The idea of reducing the digester pressure at the finish of the cook is, I think, almost universally accepted. It has decided advantages. It affords an excellent means of relieving the excess SO_2 gas from the digester without increasing the temperature. This "dry gas" relief is, without doubt, the strongest factor in building up a high-concentration cooking acid. In completing the cook, by reducing the pressure and preventing further temperature rise, we are saving the nearly purified cellulose from the drastic action of the acids, generated during the cooking process, at excessively high temperatures. Further, there is the theory that "blowing off" at lower pressures, does not break up the fibers so badly. On this latter point, it is our experience that stronger pulp may be obtained by this method, but how far the reduction of blowing pressure helps this is rather problematical. In the case of small round blowpits, where the pulp strikes the target with great force, that this pressure reduction helps the breaking up of the fibers to some degree, may be true.

One objection which has been put forward to reducing the pressure is that where digester capacity is limited, there is some loss of time while doing so. The contention is that if the pressure were not reduced, the cook could be completed fifteen minutes (possibly even half an hour) sooner.

Without a doubt, this is true; but we are inclined to think that the action of high acids, with high temperature, necessary to complete the cook would reduce the yield so that all things considered, a higher yield will be obtained by taking the reduction. Also in a week's operation, more pulp will be produced by the reduction method than by pushing the cooks to too early a completion.

Another point of objection was that by reducing the temperature and pressure, more SO_2 is kept in solution. This may be so, but it is our opinion that the solubility of SO_2 in acid at this temperature and pressure, is so low that the difference would be negligible.

Acid Conditions

The chief function of the acid plant is to produce a uniform acid, as free from SO_2, as possible. However, the actual building up of a suitable cooking acid, of say six per cent total SO_2 concentration, can be built up economically, only by proper relieving of the digesters.

In considering the advisable makeup of the acid, it is our experience that the most important factor is the maintenance of a

uniform "combined." If this is done we find it is possible to relieve the digesters better and more uniformly, and there is a noticeable greater uniformity in the pulp qualities.

The concentration of our cooking acid is kept fairly uniform by proper coordination of acid plant operation, and digester reliefs. We maintain a "total SO_2" of 5.85 to 6.20 per cent with a "combined" or 1.05 to 1.15 per cent SO_2, so that our "free" runs between 4.80 to 5.25 per cent.

This percentage of "free SO_2" aids in the cooking as we find that digesters with a higher percentage of "free" seem to have better relieving conditions. There seems to be better purification or texture of our fibers with less screenings, due to better penetration of the acid into the chips, in the early hours of the cook.

Control Work

It is our experience that money spent in control work and recording instruments is very well invested.

Recording instruments of standard makes, properly calibrated, if carefully studied and records checked with test results, are of great value.

Tests of system and cooking acid should be frequently made by the operators and results checked by laboratory work.

Strength tests, bleachabilities, freeness tests, and dirt count should be made on each digester of pulp produced. These figures, if they are accurate, are of great value and importance in the development of process for the manufacture of uniform product of standard quality.

Education of foremen, acid makers and cooks, is of much importance, not so much the actual "book learning" which may be misunderstood or misinterpreted, but a thorough understanding by each man of his work,—the importance of it, the theory or idea of what we are trying to accomplish, and a thorough explanation of the records and figures obtained.

Paper Mill Made Bleach and Caustic Soda*

By Joseph E. Plumstead [1]

Russell H. Conwell, founder of Temple University, made millions of dollars for his undertaking and entertained and inspired millions of people by repetition of one short lecture, "Acres of Diamonds".

A great many of the bleached pulp manufacturers refuse to profit by Conwell's sagacity when they refuse to consider the manufacture of their own bleach.

The reason usually given by pulp and paper manufacturers for ignoring this fertile field for profit is that they wish to concentrate their attention solely on the manufacture of pulp and paper. A very good reason, we may all agree, until we begin to analyze facts and figures.

Let us consider a typical soda pulp mill installation. The mill we will say has a capacity of 75 tons of pulp per day and the 35 per cent bleach required to reach the desired color is 15 pounds for each 100 pounds of pulp. The bleach requirements in this particular case would be 22,500 pounds per day and the caustic output in the manufacture of this amount of bleach would be 8500 pounds per day (equivalent to 11,400 pounds of soda ash) an amount nearly sufficient to supply the makeup soda requirements of the recovery department of the mill.

Cost of Making Bleach

We will now determine a bleach cost figure on the above mentioned hypothetical mill.

Salt at $8.00 per ton	.26 per 100 lbs. 35% bleach
Power at $.008 per kwh. and coal for evaporation and heat at $5.00 per ton	.51 per 100 lbs. 35% bleach
Labor at $40 per day	.18 per 100 lbs. 35% bleach
Renewals and supplies at $15 per day	.07 per 100 lbs. 35% bleach
Fixed charges $40 per day	.18 per 100 lbs. 35% bleach
Total	1.20 per 100 lbs. 35% bleach
There will be about .38 pounds of 100 per cent caustic soda at 2.75 cents for each 1 pound of bleach or a credit of	1.02 per 100 lbs. 35% bleach
Net cost of bleach	.18 per 100 lbs. 35% bleach, which is equivalent to approximately half-cent chlorine.

The foregoing gross costs will also hold for a sulphite mill provided the caustic can be sold. If the caustic cannot be sold t can be used in the bleach plant for bleach making and credited at the cost of lime or it can be used in making a very superior cooking acid in place of lime in the acid plant. The returns from the investment in these last two assumptions are not as great as the other but will usually be sufficient to make a very handsome return on the investment.

Surveys have been made with which the writer is familiar which show as high as 92 per cent return on the investment, meaning that the plant in such case would pay for itself in a little over a year and at the same time carry fixed charges.

Roughly speaking the cost of a plant will vary between 4 and 7 dollars per one pound of 35 per cent bleach capacity per 24 hours. This depends of course upon the output and local conditions.

Ordinarily a plant having a capacity of less than 10,000 pounds per day of 35 per cent bleach would not be recommended.

In the above figures no account has been taken of the cost of chlorine absorption as this cost will remain practically the same whether the gas is made electrolytically on the ground or is purchased as liquid chlorine in tanks.

It has been interesting to note the reaction of some pulp and paper manufacturers who have been approached on the subject of manufacturing their own bleach. One company was going to put in a new paper machine and would not consider an electrolytic bleach plant. Today the paper machine is installed, has been running part time and without doubt has contributed greatly to the over production which has characterized the paper industry during the past few years, and at the same time has probably not only made no return on the investment but has been a cause of red ink figures.

Another pulp and paper manufacturer would not consider the proposition because he happened to be located near a large chlorine and alkali plant. He failed to consider and analyze the matter to a point where it might be seen that his savings on the low power rate existing in his locality would make the installation of a bleach plant in his case far more attractive than it would be to the ordinary manufacturer of pulp and paper who would be compelled to manufacture his own power.

Then there is the case of a very large pulp and paper producer who operates an old type of electrolytic cell. If this manufacturer would only bring himself to realize his possible saving in power, floor space or additional bleach capacity for small outlay he would most certainly fall over himself to throw out his antiquated and uneconomical equipment.

Summary

The whole situation may be summed up as follows:—

Even though it hurts to say it, many of the men in control of the purse strings in our industry are not big enough to get right down and do some of the small things that they themselves must do to put the pulp and paper business where it belongs. Let us fight for every pound of pulp or paper production we can get out of the mill consistent with good quality but in our endeavor to cut costs let us look in our own houses for waste or low cost raw materials before we think of theoretically cutting overhead by increasing potential capacity. Low cost bleach and caustic soda produced at the plant of the pulp and paper manufacturer is only one of the many ways of accomplishment of the desired result.

* Presented at Annual Meeting of TAPPI, New York, Feb. 21, 1929.

[1] Chairman TAPPI Soda Pulp Committee; Manager Jessup & Moore Paper Co., Wilmington, Del.

Some Aspects of Freeness Testing*

By D. S. Davis[1]

The purpose of this paper is to bring together, under one heading, some of the data collected by this laboratory in the field of freeness testing. Part of this information has been previously published and we are indebted to *Industrial and Engineering Chemistry* and to the *Pulp and Paper Magazine of Canada* for several of the cuts and tables. Our experience with freeness testing in the mill and laboratory has been confined almost entirely to but one make of freeness tester, namely the Williams, and, although data are given here on three models of this tester, all information, except where otherwise noted, refers to the Model B, 1925 apparatus at 20 degrees C., and 0.400 per cent bone dry pulp consistency.

To differentiate between the three models let it be said that (1) the early 50-50 model[2] is an indicating apparatus, requires a half-liter sample at 0.400 per cent consistency and that 500 cc. of water in the cup gives rise to a reading of 250 cc., hence the name; (2) the Model B, 1925 tester[3] requires a liter sample at 0.400 per cent consistency and 1,000 cc. of water in the cup gives rise to a reading of 925 cc., and (3) the Model B, 1927 tester[4] also requires a liter sample at 0.400 per cent consistency but the construction is a little different from that of the 1925 type so that these two testers differ somewhat on pulp samples.

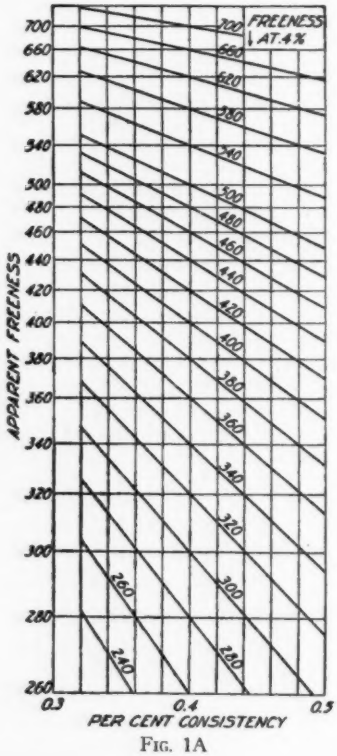

FIG. 1A

With three types in use it is desirable to be able to convert values obtained with one tester to those obtained with another and for this purpose Fig. 3[4] was constructed. Its use is illustrated as follows: if the freeness, f, of a certain stock is 150 on the 50-50 scale, what is the freeness on each of the other scales? Starting with the 50-50 scale marked f, follow the 150 line downward to its intersection with the G vs. f-curve and read 364 as the freeness, G, on the 1927 scale. From this intersection follow horizontally to the G vs. F-line and read 290 as the freeness, F, on the 1925 scale.

Effect of Consistency upon Freeness

Freeness may be defined as the rate of drainage of water through the fiber mat. At high consistencies a dense fiber mat is formed and water drains through slowly while at low consistencies

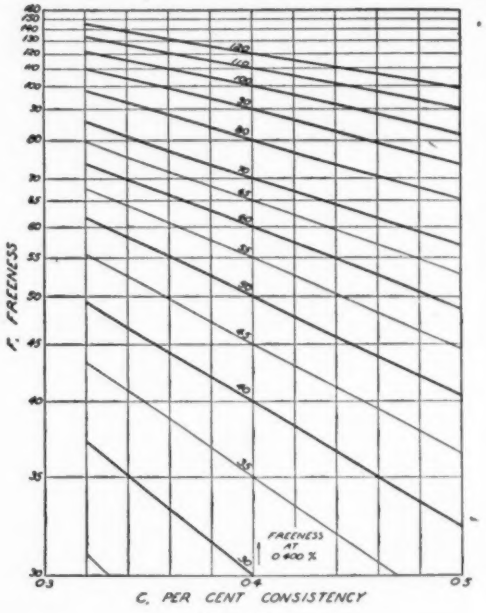

FIG. 1B

the mat is less dense and the water passes through rapidly. The mechanism of the drainage of water through the mat must vary widely from the extremes of very free sulphite to very slow ground wood. In the first case all the fibers in the cup of the tester have formed a mat by the time the water has ceased to flow through the measuring orifice, while in the latter, relatively few of the fibers have formed a mat by the time of cut-off. Nevertheless, one general relationship serves to connect freeness and consistency within reasonable limits whatever the nature of the stock. This relationship requires the reciprocal of the freeness value to be a linear function of the consistency of the stock and it may be expressed by the following equation:[5]

$$\frac{1000}{F} = K\,C + 1.081$$

where F is freeness, C is per cent bone dry consistency and K is a constant for each stock.

By the use of this equation or Figs. 1-A[4] and 1-B[5] which hold for both the 1925 and 1927 tester it is possible to correct freeness values determined in the consistency range of 0.3 to 0.5 per cent to the value at the standard consistency of 0.400 per cent. The use of Fig. 1-A is illustrated as follows: given the freeness as 320 at a consistency of 0.440 per cent, what is the freeness at 0.400 per cent consistency? In Fig. 1-A, follow the 320 line from the freeness scale at the left to its intersection with the 0.440 per cent line and read the corrected freeness value at 0.400 per cent along the slant lines as 340.

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* Presented at Annual Meeting of TAPPI, New York, Feb. 21, 1929.

[1] Junior Member TAPPI; International Paper Co. Bureau of Tests, Glens Falls, N. Y.

[2] Williams, Pulp Paper Mag. Can., 23, 443 (1925).

[3] Davis, Ind. Eng. Chem., 18, 631 (1926).

[4] Davis, Pulp Paper Mag. Can., 26, 1055 (1928).

[5] Davis, Ind. Eng. Chem., 19, 84 (1927).

Validity of Freeness—Consistency Relationship

While Figs. 1-A and 1-B were developed for use in connection with freeness testing of sulphite and ground wood respectively, they are valid within reasonable limits for many other stocks as shown by Table 1. In obtaining the data, freeness tests were made at various points in the consistency ranges and corrected to 0.400 per cent consistency by means of the above relationship. The average per cent deviation from the corrected mean value is an indication of how well the equation and charts hold for the stocks in question.

TABLE 1
VALIDITY OF FREENESS—CONSISTENCY RELATIONSHIP

Stock	Consistency range, per cent	Mean freeness at 0.400 per cent	Per cent deviation from mean
Wrapper	0.38—0.44	552	1.5
Kraft	0.40—0.41	507	0.4
Kraft	0.40—0.41	578	0.2
Kraft	0.39—0.40	656	0.6
Kraft	0.41—0.49	737	0.5
Bookstock	0.30—0.83	233	2.1
Good Bauer grinder stock	0.37—0.45	343	3.5
Poor Bauer grinder stock	0.34—0.54	510	0.9
Deckered sulphite screenings	0.42—0.47	692	2.4
Board mill stock, mixture of screenings, Bauer grinder stock and old news	0.39—0.44	490	5.2
Asbestos (beaten)	0.32—0.47	107	3.5

Table 2 lists typical freeness values for a number of stocks.

TABLE 2

Stock		Typical freeness value
Sulphite, unbleached and unbeaten		665–700
Sulphite, bleached and unbeaten		650–700
Sulphite bond,	To beaters	680
	To first jordan	505
	To second jordan	365
	From second jordan	315
	In slices	150
Kraft,	To beaters	705–740
	To jordans	500–660
	From jordans, after light jordaning	300–500
	In slices, after very severe jordaning	65– 90
News		32– 43
Ground wood		45– 70
Board mill stocks,	Bauer grinder operating well	343
	Bauer grinder operating poorly	510
	Deckered sulphite screenings	700
	Final board stocks	490–572
Wrapper		552
Bookstock		177–260
Soda		586
Asbestos, beaten		107

Effect of Temperature Upon Freeness

Regarding the effect of temperature upon freeness, it has been shown that in the case of sulphite stocks, at least, temperature influences freeness largely by virtue of the attendant viscosity effect. Fig 2[6] shows the variation of freeness with temperature

[6] Davis, Ind. Eng. Chem., 19, 162 (1927).
[7] Davis, Pulp Paper Mag. Can., 24, 987 (1926).

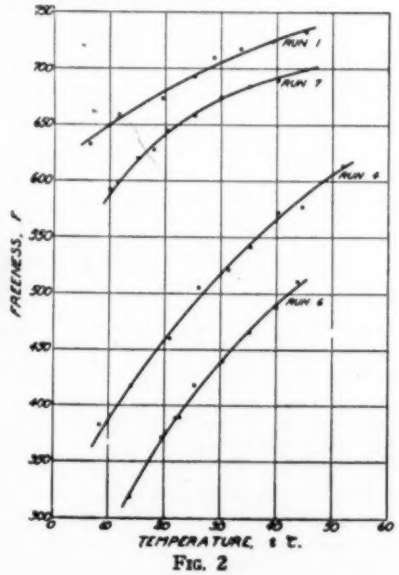

FIG. 2

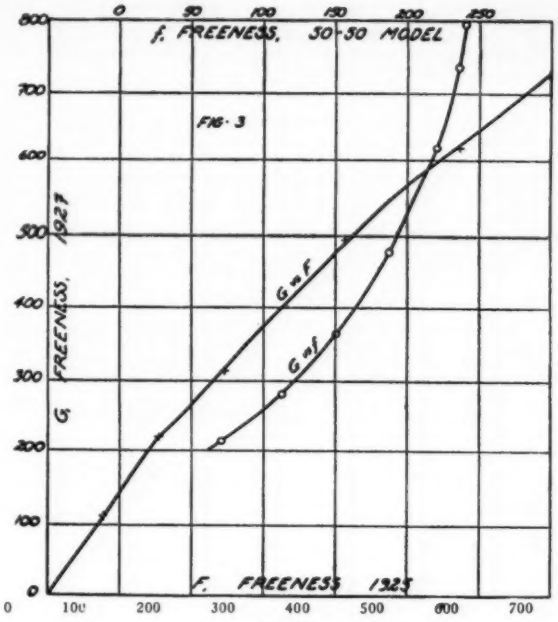

FIG. 3

for four sulphite stocks and Fig. 5[7] enables correction of freeness of sulphite stocks from the temperature of the test to the standard temperature, 20 degrees C. Thus if the freeness of a sample of sulphite at 18 degrees C. were 500, to find the freeness at 20 degrees C., find the intersection of the 18 degrees C. line with the 500 line from the left scale and interpolate the desired value, 510, between the slant lines. For ground wood, freeness is linear with respect to temperature and changes at the rate of about 0.9 cc. per degree C.

Freeness of Stock Mixtures

In obtaining data on mixed furnishes, master samples of each pair of stocks were made up and mixtures prepared of known percentage composition. Fig. 4 is a plot of the freeness of the

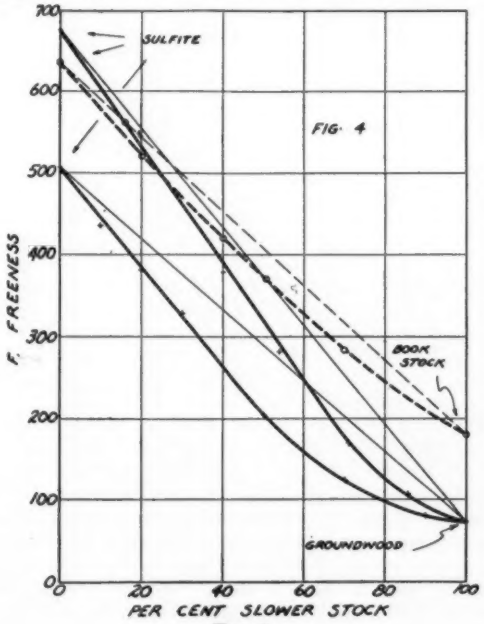

FIG. 4

mixture against the percentage of the slower stock present in the mixture. Three systems are represented: mixtures of ground wood with very free sulphite, mixtures of the same ground wood with a slower sulphite and mixtures of bookstock and a very free but different sulphite from the two previously mentioned. The heavy lines show the manner of change of freeness with composition and the light lines connecting the extremities of the heavy lines show how the change would have taken place if freeness were an additive property, which it is not. Thus, a mixture containing 50 per cent ground wood of freeness 72, and 50 per cent sulphite of freeness 506 has a freeness of 205 and not 289, which would correspond to the arithmetric mean.

Effect of Filler Upon Freeness

In obtaining data on the effect of filler, master samples of each component at known consistencies were made up and from these it was possible to prepare mixtures of known percentage composition. These fiber and clay mixtures as made up in the laboratory are probably not identical with the corresponding mixtures as found in the mill but will serve to throw light upon this phase of freeness. Table 3 gives data on the effect of filler on the freeness of four sulphite stocks. Sulphite and clay where present together are in the ratio, on the bone dry basis, of 10:3, respectively; that is, the furnish is 100 per cent sulphite and 30 per cent clay.

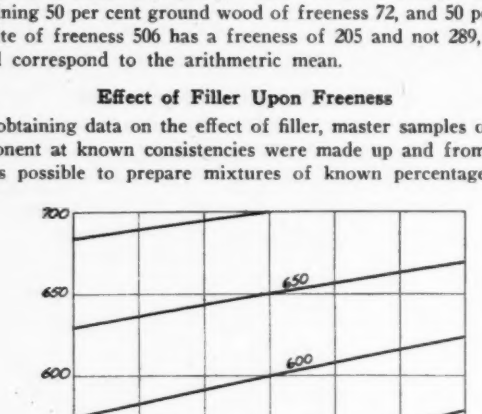

FIG. 5

TABLE 3
EFFECT OF CLAY UPON THE FREENESS OF SULPHITE

Per cent consistency				Freeness			
Fiber	Filler	Total	Stock No. 1	2	3	4
0.400	0	0.400	686	483	270	116
0.308	0.092	0.400	715	508	282	129
0.308	0	0.308	730	543	323	145

Whether or not filler decreases the freeness value depends upon the consistency basis to which the value is referred. The ordinary and most convenient experimental method is that of running freeness tests on the fiber plus filler or total consistency basis, and on this basis the addition of filler through replacing an equal weight of fiber results in a higher freeness value. Thus, the freeness of Stock No. 1 (Table 3) at 0.400 per cent fiber and total consistency without clay is 686. But when 30 per cent clay is added, the freeness determined at the same total consistency is 715. This is partly for the reason that clay adds to consistency without at the same time contributing particles to the sample which are identical with fibers. If clay influenced freeness solely by its effect on consistency, the values in the third line of the table would agree with those in the second line. The values in the first and second lines of the table are comparable at the same total consistency, while those in the second and third lines are comparable on the same fiber consistency basis. In consequence of which this statement may be made: on the same fiber consistency basis, filler decreases the freeness value while on the same total consistency basis, filler increases the freeness value. This statement is also borne out by Table 4 which includes data on sulphite, soda, bookstock and clay.

TABLE 4
EFFECT OF CLAY UPON FREENESS OF MIXED FURNISHES

Components	Furnish Per cent	Per cent consistency Fiber	Filler	Total	Freeness	Test No.
Sulphite	100	0.400	0	0.400	696	1
Soda	100	0.400	0	0.400	586	2
Bookstock	100	0.400	0	0.400	217	3
Clay	100	0	0.400	0.400	925	4
Sulphite Soda Bookstock	80 10 10	0.400	0	0.400	669	5
Sulphite Soda Bookstock Clay	80 10 10 30	0.400	0.120	0.520	647	6
Sulphite Soda Bookstock	80 10 10	0.308	0	0.308	715	7
Sulphite Soda Bookstock Clay	80 10 10 30	0.308	0.092	0.400	681	8
Sulphite Bookstock	50 50	0.400	0	0.400	492	9
Sulphite Bookstock Clay	50 50 30	0.400	0.120	0.520	468	10
Sulphite Bookstock	50 50	0.308	0	0.308	550	11
Sulphite Bookstock Clay	50 50 30	0.308	0.092	0.400	525	12

With regard to Table 4, note that Tests 5 and 6 are comparable on the 0.400 per cent fiber consistency basis and that Tests 7 and 8 are comparable on the 0.308 per cent fiber consistency basis and that in each case on the fiber basis the effect of the addition of clay was to decrease the freeness value. Tests 5 and 8 are to be compared on the 0.400 per cent total consistency basis and it will be noted that on the total (fiber plus filler) basis, the effect of the addition of clay was to increase the freeness value. Note that Tests 9 and 10 are comparable on the 0.400 per cent fiber consistency basis and that Tests 11 and 12 are comparable on the 0.308 per cent fiber consistency basis and that in each case on the fiber basis, the effect of the addition of clay was to decrease the freeness value. Tests 9 and 12 are comparable on the 0.400 per cent total consistency basis and on this basis the effect of the addition of clay was to increase the freeness value.

TABLE 5
EFFECT OF FILLER ON FREENESS OF HIGH GRADE NEWS STOCK

	Freeness		
Stock No.	1	2	3
High grade news stock, 0.31 per cent fiber consistency 0.40 per cent total (fiber plus filler) consistency.....	37	38	39
High grade news stock, 0.31 per cent fiber consistency 0.75 to 0.77 per cent total (fiber plus filler) consistency	32	34	32

Table 5 illustrates the manner in which the addition of relatively large amounts of clay affects the freeness of three high grade news stocks. As before, on the fiber basis the addition of clay serves to decrease the freeness value.

Utilizing Ground Wood Rejections*

By W. E. Brawn[1]

This article has to do with the general subject of ground wood rejections. It is not the intent to offer definite solutions to all the various phases of the problem, but rather to discuss conditions from several angles. It is also hoped to point the way for future investigation whereby results will be obtained which will be of benefit to the industry in general.

For many years the cheapest and easiest way to dispose of all forms of ground wood rejections has been to sluice them to the river. This method of disposal has also applied to waste from other pulp and paper making processes and to other industries. When coupled with the introduction of large quantities of sewage many of our rivers have become polluted to the extent that legislation has been enacted prohibiting the disposal of waste in this manner. It is true that much of all waste put into our rivers has little if any money value, and any method to dispose of it otherwise would be expensive. Rejections from the ground wood pulp making process, however, do have a value which under present day conditions and because of new inventions can be converted into dollars and cents at a profit.

Generally speaking, the loss in all forms of waste from the ground wood process for different mills ranges between 5 and 15 per cent of the weight of the wood used. This variation is caused by differences in the quality of the pulp manufactured by individual mills and their operating efficiency. Whatever use any of these rejections can be put to is further important from the standpoint of conservation of raw materials. Thus we see three important reasons for any mill to study its ground wood tailings and waste; (1) prevention of stream pollution, (2) conservation of raw materials and (3) profit to the owners.

Need for Frequent Check-Up

Aside from whatever other losses there may be, ground wood rejections in general consist of bull screenings, riffler waste, knotter waste, first screen rejections and tailings. The character of each class of these rejects is well known to all those familiar with the ground wood process, and need not be described here. Once made in the grinding process, they must be eliminated by the screening system, and after elimination must be disposed of, either by wasting or utilizing. It is therefore important to make as few rejections as possible and thereby make use of them because of elimination at the source. A complete and thorough check-up of the grinding operation will reveal facts which often go a long time without attention, although deserving it. Continuous checking up by tests and by men whose job it is to keep operating superintendents and foremen constantly informed is the best plan for keeping waste formation at a minimum and quality uniform.

As points for investigation in the grinder room, attention is called to some of the more important, which are discussed in the following. There is first the wood condition which includes species, moisture content, age when cut, time and condition of storage, size, soundness, and physical condition after removing the bark. The management in buying wood should realize the effect of variation in these factors on resulting production and quality of finished pulp. Next, at the grinders there is difference in performance due to type. Rejections are for the most part made in the grinding operation, and there is considerable difference of opinion regarding the relationship between grinder type and quantity of rejections made. Finally, in the grinding operation itself, consideration should be given to the ratio of grinding speed to grinding pressure, the selection of proper burrs, correct sharpening methods, grindstone grits, grinding temperature and consistency, and grinder maintenance, all of which affect the resultant stock freeness, fiber quality and production of first grade pulp. Freeness testing is important and equally so is blue glass examinations or similar tests. The freeness test tells more about the rate at which water will leave the pulp, the glass examination shows up the coarse fibers that the screens must throw out.

The Screening System

The function of the screening system is to eliminate the undesirable. The plate perforation of each unit plays a very important part and must be worked out according to the requirements of quality and to insure that too coarse material is not permitted to pass on to successive screening units. Overloading of screening equipment is often the cause of high rejections and flows should be regulated to prevent this. Close watch should be kept of the stock consistency to each unit and an endeavor made to hold this as uniform as possible. Other factors for consideration in the operation of the screening system are those of pump performance, screen shower volume and pressure, plate cleaning, screen speeds, and increase of screen plate perforations due to wear.

Without attempting to recommend any particular layout or specific machines, it seems advisable to include here, for purposes of general comparison, the results being obtained in an 80 ton ground wood mill where the foregoing factors have been for a number of years carefully kept checked up and recorded continuously. This mill which makes ground wood pulp for standard and special grades of news print, has the following equipment: sixteen 3-pocket old style hand fed grinders for 2 foot wood, water wheel driven, two grinders per line, oscillating type of bull screen with half inch holes in the plates; 3 knotters having one-quarter inch perforated plates; 5 centrifugal screens having .006 perforated plates; and 2 tailing screens having 0.1 inch perforated plates. Continuous tests are taken and records kept in a laboratory located in the grinder room. One man per shift is employed to test individual grinder stock, measure and sample white water and tailings losses, gather general operating information, inspect wood and keep production records. The average for the past year of each kind of rejection was as follows: bull screenings, 10 pounds per cord; knotter rejections, 24 pounds per cord; and tailings, 102 pounds per cord, or a total waste of 136 air dry pounds per cord of wood ground. The average yield of No. 1 ground wood was 2,205 air dry pounds per racked cord of 128 cubic feet of mixed drum barked and peeled wood.

The Recovery System

When a mill decides to save all its rejections for any use whatever it is immediately faced with the problem of a simple and economical method of recovery. Because of difference in mill construction and difference in use to which the tailings are to be put, this generally requires individual solution. All forms of rejections are very wet when discarded from the screening system, and water removal is usually necessary. Various units of dewatering equipment are used, such as the inclined screen, wet machine, beater washer, squirrel cage thickener, and ordinary drainage. The problem is not so great where a mill plans to utilize all or a part of the rejections in its own plant, but if it proposes to ship them to some other point, it will be necessary to go into a study of methods of dewatering and handling. All ground wood rejections tend toward bulkiness, even when compressed and fairly dry. For example, tailing screen rejections at 33 per cent air dry test when baled with medium pressure supplied by an ordinary hand baling machine, have a bulk of 8¼ air dry pounds per cubic foot. An ordinary 36 foot freight car will hold in volume

* Presented at Annual Meeting of TAPPI, New York, Feb. 21, 1929.

[1] Member of TAPPI; Asst. Gen. Supt. Pejepscot Paper Co., Brunswick, Maine.

between 9 and 10 tons of this material if packed to the limit of space. At the test of 33 per cent air dry, the limit of weight capacity of the average 36 foot freight car is also reached, so that further compressing is unnecessary without further dewatering. There is need for the development of dewatering equipment and handling methods so that the mill which is unable to use rejections within its own processes, can collect and ship with greater economy than present practices allow.

Ground wood tailings when refined to suitable degree of fineness can be used back in the regular ground wood system, but this is not always possible because of quality limitations. They can be used in such products as coarse wrappings, box boards and container boards, light and heavy wall boards and artificial lumber. In all cases, refining of some kind is necessary. To meet this demand, various types of refiners have been developed, and there are now a sufficient number in use to definitely state that successful refining can be fairly economically accomplished. When purchasing a refiner, careful consideration must be given to the nature of the material to be refined, the capacity required, and the extent of refining desired because of the influence of these factors on power consumption and maintenance of the refiner, and the quality of the product in which the rejections are used. Probably the oldest types of refiners that have been used for the working up of ground wood tailings are the jordan engine and beaters. These are still in considerable use and particularly so in connection with the paper machine. Other types of refiners have been developed in recent years, embodying quite different principles of operation. A few of these types are briefly described in principle in the following.

The Centrifugal Roller Mill

Smooth cylindrical steel rolls are revolved around a central shaft in a steel casing having a smooth, cylindrical steel liner. The rolls are flung out by centrifugal force produced by their rapid rotation around the central shaft, and roll over the material to be refined with a crushing pressure dependent on the speed of the shaft, the weight of the rolls and the size of the machine. In its continuous course through the machine, the material is confined to a definite path and undergoes a predetermined number of crushings.

An auxiliary machine is used in connection with the refiner to govern the rate and consistency of the feed. The principle of this method of refining makes possible a definite control over such factors as crushing pressure, number of crushings and consistency and rate of feed. This, in turn, affords a control over the quality of the refined material.

There are several types of rod mills on the market at the present time. In general, steel rods are placed inside a steel shell, or steel shell lined with wood, and the shell is revolved. This produces a tumbling action of the rods, whereby the material that is fed in receives a crushing. The material is fed to the refiner by screw flight or directly discharged into the end from some type of dewatering equipment. The action of the mill is controlled by the amount fed through the mill, the nature and consistency of the material, speed of operation and size of the mill.

Refining Stones

This type of refiner has two refining stones of carborundum whose cutting surfaces next to each other are grooved in opposite directions. One stone is held in fixed position, the other rotates. A spring holds the stones in operating position, and there is also equipment for independent adjustment of the spring. The stock to be refined is fed directly to the refiner with a certain degree of consistency control. The refined stock passes to a screen and coarse material from the screen is returned to the refiner.

Combined Refiner and Screen

Refiner and screen are combined in one housing. All material not passed by the screen is automatically returned to the refiner without leaving the machine. All material discharged is of the desired size. The stock to be refined enters first a screening cylinder where fibers not needing additional refining are removed. The balance of the pulp, too coarse to pass through the perforations, is thrown by centrifugal force into a stock chest above the refiner. From here it passes to the refining stones and then again to the screen where the process repeats itself. The fineness of the stock depends on the size of the perforations used in the screen cylinder.

Summary

The foregoing brief descriptions of several types of refiners now in use serve to show that definite progress is being made in the direction of more efficient refining. In conclusion, it has been the aim of this paper to point out certain paths of investigation for elimination and greater utilization of ground wood rejections. The points covered are summed up in the following:

1. Tailings utilization eliminates one source of stream pollution, conserves raw materials, and tends to extra profits for the mill.
2. The first step in utilization of tailings is to study the mill operation in detail and keep all forms of rejections at a minimum.
3. Studies should be made into more efficient methods of handling rejections, both for use in the mill and for shipment to distant points.
4. Further investigation is necessary for additional uses to which tailings may be put.
5. There are various types of refiners offered at the present time which are improvements over older types, and any mill can well investigate their possibilities for use in its individual layout to meet requirements.

Report on Corrosion and Waste Problems

By H. L Joachim, Chairman[1]

During the year 1928, your Committee completed a white water survey of book paper and board mills; prepared a tabulation of representative materials recommended for, and used by, pulp and paper mills and has formulated fundamental corrosion questionnaires to be sent out to the industry.

The replies received in response to the white water questionnaires brought out valuable information on the volume and reuse of white water, stock losses, construction of shower pipes, recovery equipment and chemical treatment of white water. Copies of the summary of all replies were sent to each mill participating in this work. It is expected that this survey will be of basic value in the cooperative work between your Committee and the American Paper and Pulp Association during the year 1929.

The tabulation of 21 corrosion resisting materials, or classes of materials, recommended for, and used by, pulp and paper mills should furnish a nucleus for future work of the Committee. Wherever possible the information under "Applications" has been investigated in the mills. No attempt has been made to list the different alloys according to S. A. E. standards; this classification, however, is recommended for future and more complete work.

The corrosion questionnaires formulated by the committee cover corrosion in power plants, sulphite, sulphate and soda pulp mills and paper and board mills. Your Committee believes that, in general, there are only a few problems in our industry which are entirely new to the manufacturers of corrosion resisting materials and that the experience gained in combating corrosion in other chemical industries can be advantageously applied in our own field. A concentrated effort to accomplish this for the pulp and paper industry would present itself as one of the major problems.

* Presented at Annual Meeting of TAPPI, New York, Feb. 19, 1929.
[1] Member TAPPI; Technical Director, Container Corp. of America, Philadelphia, Pa.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

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Edited by
THOS. J. BURKE, C. A., Sec.-Treas.

Plan Your Work and Work Your Plan*

By H. G. Crockett, C. P. A.[1]

After you realize that this talk is to be about Standard Costs, Production Methods, Sales Quotas and Budgetary Control some of you may say, that it is old stuff which you have heard many times before and that this rather Yellow Journal type of Title is only a new kind of sauce spread over the dish in an attempt to make you think that something different and more appetizing is being offered. I hope you may find, however, in what I have to say, that perhaps there are some new angles to these questions or some new applications of old ideas.

Standard Costs and Sales Quotas

We have been hearing about Standard Costs for a long time; we have been told about proper methods of scheduling and controlling production; and more recently we have read and talked much about setting Sales Quotas and establishing complete Budgetary Control. There are many companies in many industries that have some of these things in complete and effective working order. There are many others who think they are operating some or all these plans, yet investigations and closer questioning brings out that they are not working on real Standard Costs; they are not controlling production so much as they are recording the progress of production. Their Sales Quotas are chiefly a hope that they will have more business than they had last year; and budgeting is usually not much more than setting an expense budget, with the hope that general conditions throughout the year will remain at a point where it is possible to meet this budget. These companies are not intentionally fooling themselves nor anybody else; they just do not realize that, what they have is not as good as it should be or could be, with a little extra effort.

Small Concerns Can Budget

Nobody will deny that it is a good thing to plan business ahead, even if you are operating what may be called a small business. I say that because, many times executives of what might be called small or medium sized plants think that these plans are all rather in the nature of luxuries, which only the larger manufacturers and corporations can afford, but that is not the case. The larger organizations will require a more detailed plan, but in my opinion no manufacturer who is operating a plant large enough to entitle it to be called a manufacturing business can be sure of getting the most out of his business unless he plans his work ahead and then sees that everybody works to that plan, and that actual results are checked to the expected results or standard, all along the line.

Everybody will agree that there is no sense in spending a lot of time and money in developing a plan unless it is going to be carried out. The almost universal question I get from executives is how am I going to follow this or that plan and know that it is being carried out. He cannot be familiar with all of the details, yet he must have some way of knowing that the various plans are being worked.

Standards Must be Checked

Many companies that think or say they have standard costs have only set up some cost standards, which may or may not be good standards, but which are not tied in with the books and therefore cannot be checked in any effective way.

Only a few days ago a manufacturer who has always thought he had standard costs but never thought it worth while to tie them in with his books so that he could be sure the plan was being followed, came to me with a $60,000 shortage in his inventory. He thought his actual costs were checked to his standards and variances accounted for, but it was left to subordinates and he had no way of knowing how closely they followed things. It was not due to carelessness or neglect but conditions had changed, nobody realized what the effect would be, and so nothing had been done.

If you are going to establish standard costs, which is in effect, planning what your costs should be, you should work that plan to the extent of knowing how near actual costs approach these standards, and do something about the variances. In other words —work the plan.

Controlling Production and Labor

The purpose of a production control plan is to keep all inventories at the proper level, to schedule work to meet sales requirements, and to keep all departments working as steadily as possible, and generally to anticipate conditions and needs. Unless there is an effective check on actual inventories, orders received and production, as compared with the estimates on which the plan was laid out, the plan is not being worked as it should be and results are not satisfactory.

Only a few days ago I was walking through a paper mill and noticed that the sorting department was practically idle, and the employees were standing around waiting for something to do. After a while some were sent home, some were transferred to other work temporarily, and enough sorting came through to keep the others going.

They said that was one of the problems of their business—part of the time their orders called for roll stock and part of the time for sheets. They had a production control plan, but they didn't

* Presented at the convention of the Cost Association of the Paper Industry at the Waldorf-Astoria Hotel, New York, Feb. 20, 1929.

[1] Partner, Scovell, Wellington & Co., New York.

work it. The production department told the manufacturing department the sequence in which orders should be run on the machine, but with no thought for the following operations. They were not working their production scheduling plan to get out of it what they should and thus make it really pay them for their investment. Even if they could not control orders as between roll and sheet stock, they could have known several days ahead that there would not be much work for the sorting department.

Setting Sales Quotas

I do not need to tell you how many times sales quotas and budgets are set, only to be discarded after a brief but half-hearted attempt to put them into effect. With sales quotas it is not so much a case of not working the plan as of not having really planned their quota in the first place.

You cannot set a quota by guessing or hoping that you can increase your volume ten per cent; neither can you set a budget that will mean anything without a careful forecast of the conditions that are to prevail the coming year.

Now it is possible and not very difficult to set up a quota, or at least a quota plan that will work and to match that with a budget. None of these things can be done without a little effort, but there is nothing that pays like intelligent planning and following those plans.

Planning for Profits

Furthermore, there is an effective way of coordinating all of these plans and making it easy for any executive to see that the several plans are really worked and that is through real budgetary control. This is something more than an expense budget. It means budgeting every item of expenditure, and planning definitely for the profit you ought to make. And why not?

After all we are in business to make a profit. You will say that you know how much money you would like to make or ought to make and that you do not have to have much of a system to tell you that, but that there are many factors about your business which might prevent you from getting the sales volume that you require at the prices you ought to get. My answer to that is that you will come nearer reaching the desired point if you plan in a definite way what must be done to produce the desired profits and work very definitely towards that end.

It is setting the sales quota and establishing proper budget control that seems to present the chief obstacle. It is a comparatively simple matter to establish good cost standards and production control methods, and it is very necessary to have them if you are to have a sales quota and budget that is at all satisfactory. When it comes to quotas we are told that "our business is such that neither the Sales Department nor anybody else can tell what we shall sell, or when or at what price." In the absence of any reasonable Sales Quotas it is hard to set up any proper budget of expense because obviously expenses fluctuate with the volume of business. Few companies have taken the trouble to determine how much they should fluctuate, so that unless their volume hits very close to the quota set, the expense budget is of no great value as a measure.

It is quite true that you cannot control outside conditions and no matter what you may do, sales may fall short of the mark you have set, but these things rarely happen over night and if you have made a definite plan and are working that plan, which means checking actual results with the expected, you will see something of what is going to happen and trim your sails accordingly.

Sales by Months

Many people make the mistake of trying to set a quota or a budget for a year with no intelligent breaking down of that budget to months or quarters, and then when they find that sales are way above or way below the quota, they throw the whole plan overboard and say that there is no use trying to forecast what is going to happen. If you set a budget for the cost of doing a million dollars worth of business, and business drops to three quarters of a million or increases to a million and a half, your budget of expense for a million is of little or no value in helping to control the situation.

To effectively plan your work you must have real budgetary control and that is much more than a mere budget of expense. It means budgeting all items of income, cost and expense, and therefore budgeting profit or loss, not only for the year but for each of the twelve months. It means harmonizing the sales and manufacturing programs. Many of you will say that that sounds well but that it is difficult or impossible for you to do in your particular business. If you are on the manufacturing end of the business you will say that you could plan your work all right if the Sales Department would give you any idea of what they were going to need; if you are in the Sales Department you will say that you would be sitting pretty if you could ship from stock or depend on the manufacturing department's promise of delivery. If you are in the executive end of the business, whose concern it is to see that the company makes a profit, you will say that to meet every request of the sales department would mean a tremendous inventory of finished goods or ruinous manufacturing in small runs, and on the other hand in these days of hand to mouth buying on the part of our customers, you cannot afford to let the manufacturing department stick to only one or two products and manufacture those in long runs.

Production Based on Estimated Sales

Therefore our first and perhaps biggest problem is to harmonize our sales and manufacturing programs. You will agree that it is a comparatively simple matter to determine the capacity of your plant. It may require considerable study to get absolutely accurate figures on that, but for our purposes, at least in the beginning, it is not a very difficult problem. An analysis of sales for past periods will give you the volume and tonnage by months of the various products sold. It is also desirable to know if possible what the inventories have been over this same period. This is particularly important if you have a seasonal business.

The past is not necessarily an accurate picture of what is going to happen in the future, but after all, it is a guide, and experience has proven to us over and over again, that a careful study and analysis of what has happened in the past, is a great help in planning for the future. In other words, a study of past sales, inventories and production, gives you a picture of what the relation of the sales and manufacturing program should be. You know how long it takes you to make any particular grade of paper and finish it in any one of the forms in which it is sold, starting with the basic raw material, or to put it in another way, you know what the average manufacturing cycle is for any of your products.

Nobody would be foolish enough to say that setting a sales quota, at least for the first time, was a particularly easy job—not if it was in any sense, a measure of what could or should be done.

As far as any procedure can be laid down it is a question of determining what you have to sell or what you can make, and then getting all the information possible regarding past sales or market possibilities of the several products in the several territories.

In my experience many sales quotas are of little value because they were not made up in any thoroughgoing way. Nobody has taken the pains to get together all the information possible and to analyze that information to see what factors have affected sales in the past, and therefore what might affect them in the future.

There is no royal road to success in setting sales quotas, any more than in doing anything else, but every time you try it the task becomes easier.

The important thing to have in mind is that it is the salesman who has to sell that quota, and therefore it must be sold to him, if you are going to have his real cooperation. He must be satisfied that the quantities set are based on sound reasoning and

the best knowledge available, his own included, and that he has a fair chance of success in reaching it. Therefore, quotas should be set by intelligent cooperation between the Sales Department and the Manager.

Eliminate Production Peaks and Valleys

Having set up the quantities of the various products which we believe we can sell, and the month in which we expect shipment to be made, it is not a very difficult matter to translate that into a manufacturing program that will keep the departments operating at a fairly steady rate and will at the same time maintain the inventories that we must have in raw materials, finished goods and in a semi-finished state to meet this sales program. In other words, regardless of whether our quota is reached or not we have at least planned what our manufacturing program must be and what our inventories must be to meet particular requirements. If we check the quota or budget constantly with actual performance in each of those factors, it is not very difficult to decide what ought to be done.

Supposing you have set a quota of Sales for $100,000 a month for the year, and that you have planned your inventory and manufacturing program to meet those sales requirements. You may be running full right now and shipping up to your expectations, but orders for the future may not be coming in as fast as you expected. If that continues for any length of time and you see that the trend of orders received is away from or less than the orders you expected, you know that a continuation of your present manufacturing program will simply pile up an inventory which it may be difficult to get rid of. You may or may not reduce the quota to the Sales Department (that is, you may not say to them that you expect less than you did in the beginning), but you can at least change your manufacturing program to meet the new sales conditions. That is what I mean by harmonizing the sales and manufacturing program.

To repeat what I said in the beginning, many give up trying to set sales quotas or budgets, because they feel that there are factors in their sales problem that are beyond their control, and that unless the quota is reached, then of course the budget does not hold.

I say it is possible and not very difficult to match a budget with any Sales quota and scale it up or down so that you will have a fair budget for any rate of activity or any volume of sales.

This is not a dream because many companies are doing it. It may not work 100 per cent in the beginning but neither will anything else. Until you have tried out such a plan you do not know all you should know about the various factors and conditions that may affect either sales or manufacturing.

Shutdowns Serious in Paper Industry

I can hardly think of any industry that is more seriously affected by a shutdown or by operating below normal capacity than the paper industry. This is due to the very large investment in the principal manufacturing unit, the paper machine. There will be times when in spite of any planning you can do, you will have to shut down at least part of the time, but there will be less of it and it will be less costly because you have foreseen it coming if you follow such a plan as I am suggesting and work that plan consistently. It is better to operate a mill at something less than normal capacity all the year round than to run it full or overtime part of the time and shut down some of the time. Whatever your operating capacity may be, or rather at whatever operating capacity you can run, if you run at that level consistently you can plan your force better and so operate more economically than if you have a force that is equal to a peak load at times.

Seasonal Variations in Sales

Perhaps I can best illustrate this by a concrete example. A manufacturer operating two large plants found that they had been operating for years on the "peak and valley" basis, running overtime part of the year and being partially shut down other months of the year. It had become increasingly difficult to hold the employees on this basis and the new president of the company decided that that was not an economic way to manufacture.

Without making any very thorough investigation or detailed study beyond estimating that the total expected sales was about 70 per cent of capacity, they started operating their plant on that basis. They had not laid out any definite budget or schedule of orders to be received or shipments to be made, and the only thing they noticed after they started to operate was that the inventory began to increase rather rapidly. As a result the Directors got alarmed and practically shut down two or three of the major departments concerned. It so happened that in this industry the manufacturing cycle is fairly long, perhaps two or three months. A little later orders began to come in rather rapidly but they couldn't get back onto a proper manufacturing schedule in time and as a result they lost a lot of business through their inability to fill orders.

They then decided that they would go at this thing in a systematic if not a scientific manner, plan all of their work definitely and stick to that plan. In other words, as the president put it, "If I can feel certain that, if inventories do increase, it is in line with a plan that has been worked out, and that along with that increase in inventory, orders, shipments and production are also in line with a definite plan, then I can so persuade my directors, and if I can show them, that I am following the situation closely every day, and that there is no danger of our getting caught, then they will not get alarmed at the increase in inventory and we will not be caught without the goods when orders begin to come in."

We therefore made an analysis of the sales of this company's five major lines of products over a period of two or three years in order to see what had been the usual flow of orders and shipments in relation to production and inventory, and also to eliminate or at least subject to special consideration, unusual items, that had been added to or taken from the line, or particular contingencies, that had affected the manufacture.

As a result we were able to lay out a manufacturing schedule that would keep the plant operating at a fairly level rate of capacity throughout the year and at the same time meet the expected sales requirements every month and build up the inventory for the two openings.

Chart for President

We prepared a chart for the use of the president on which we plotted four lines: The expected sales or orders received, actual shipments, production, and inventory. On that we plotted every day the actual orders received. It is only necessary to plot the shipments and production once a week and the inventories once a month, although we can follow those more closely if necessary.

Obviously there is considerable detail back of that and through their finished stock records they are following the sale of individual items in the line. You can easily see that with such a guide as that before you, it is hard to go very far wrong, because you always have the relation of each of the three or four items to each other.

Depending upon the length of your manufacturing cycle, whether or not your business is seasonal, and possibly some other things, there is and should be a very definite relation between orders received, production and inventories, and if you will watch the trend of any one of those with relation to the others, you can go a long way towards maintaining the ideal relations between these items, which is the standard we should all be striving for.

Budget to Vary With Sales

Starting from this point, to set the money value on sales quotas and budget all items of cost and expense is not such an impossible task as it might seem to be. The best plan would seem to be to set the first or master budget and sales quota at 100 per cent of the plant capacity. You will of course, have to use some judgment in deciding how that capacity will have to be

divided among the several products, but if those products require different processes or operations, it is a matter of knowing the relative capacity of the various departments; and if it is a question of what can be sold, there of course, you will have to depend somewhat on the judgment of the sales department and an analysis of past sales, assuming that you have not had and cannot get as yet a very careful market analysis which will give you a more accurate estimate of what can be sold.

From this master budget and quota you can scale up or down by reasonable steps of 5 or 10 per cent. What you are actually doing is, setting up several budgets or quotas, all based on and calculated from a master quota or budget and you only have to go so far as to be reasonably sure that you are covering the range in which sales may be expected to fall. You may not know exactly what your sales are going to be, but if you were operating and selling 70 per cent of your plant capacity last year, you have a very good idea whether sales this year are going to be at about 50 per cent of plant capacity, or whether they are going up to 100 per cent.

Once the master budget and quota are set it is a comparatively easy matter to detail all the figures up or down to the various other points which you may wish to set. Certain items you know will remain fixed at any capacity. Other items vary almost directly with production, particularly after you get to the point where you are operating at say 60 per cent or 80 per cent of plant capacity. In other words, the variation in these items follows the variation in production as long as you are above what might be called the profit-making point in manufacture. There are other items of expense which fall half-way between these two extremes, but an analysis and study of all items of expense in relation to past operating performance will show you if and to what extent they vary with production, so that it is a comparatively easy matter to set the budget for any operating point.

Most budgets are rather ineffective because they attempt to set an expense limit without regard to the rate of activity of the plant or several departments. If the activity increases an executive hardly feels justified in criticizing the department heads very severely if expenses increase somewhat, although he may feel that the increase was more than was warranted. Thus, the moral effect of the budget is destroyed, and it is no longer of any real value as a measuring stick.

Plan Includes Fixing Responsibility

If a budget is to be worth the paper it is written on it must have the right kind of an organization in back of it. I do not mean just the right kind of personnel because that goes without saying, but an organization with functions and responsibilities clearly defined and followed. You are not going to get the best results or the profits from your business that are possible, unless all of these things are properly coordinated into a complete plan.

As I said in the beginning, everybody has some kind of a sales plan or program which they lay out at the beginning of the year or from month to month; everybody has some kind of a plan for translating sales orders to manufacturing orders and to get those orders out in time to satisfy the customer's demand. Everybody has some kind of a cost program from which they have some idea of what certain products ought to cost them; and everybody has some measure by which they attempt to judge their expenses. Why not then coordinate these units into a complete plan and work that, and thus get an almost automatic check on each one. It really is not such a difficult job because, as I have already said, you are all working on a very definite plan for some one or all of these functions separately; you just do not put them together into one picture where you see each of them in relation to the others.

"Service" Problem

I do not know of any more effective plan of getting the sales and manufacturing departments working together ,and you know how desirable that is. In these days of what may be called a "buyers market," your big problem is in trying to give your customers reasonable service. How often do those of you, who have to do with production, have a complete manufacturing program worked out for some period ahead, and then have that completely and unexpectedly upset by some requirement of the sales department to meet the demand of some good customer. You are going to have some of those, but you won't have as many of them, and they will not have as disastrous an effect on your production plan, when they do come, if you have a sales and manufacturing program really coordinated. It is because of this lack of coordination between sales and manufacturing, or the lack of what may be called a completely harmonized program that I say, that most production control systems are not "control" systems, but "progress-recording" systems, and they are not really accomplishing in any effective way, the results that were expected when they were started.

Know What You Are Doing

The difference between having a complete and well defined plan for your whole business, and going along on a more or less guess work basis, is that you know what you are doing. As a president of a large company which has a well developed plan said to me, we know absolutely what we are doing and so far as our own organization is concerned, we have absolute control of the situation; because of that knowledge we have a better control of the outside or sales situation and our purchasing agent is in a much better position for buying and getting deliveries and the right kind of service. Every department head knows exactly what is expected of him, and he knows it far enough ahead so that he can plan his own work and department accordingly, and he is rewarded or otherwise as he meets or fails to meet the requirements.

Budget Plan Essential to Modern Business

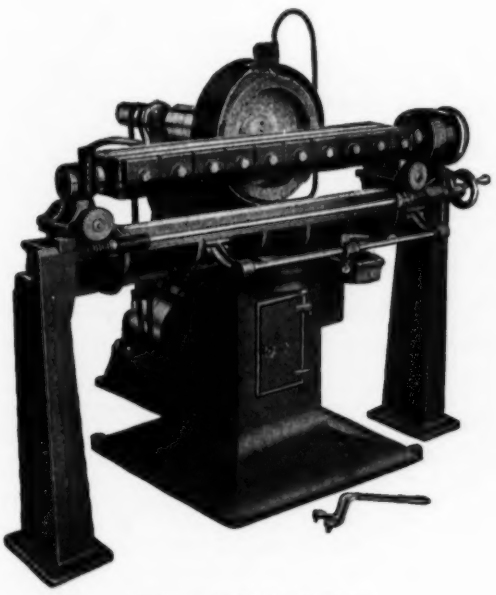
It is needless to say that such a plan as this is the only proper basis of incentives to salesmen or executives. If quotas and budgets and all of the various details are worked out on a scientific basis by an impartial department, then every man in every department is measured by the same yard stick, and if he knows that he is being so measured and will be rewarded according to the results he produces, it cannot help but have a wholesome and stimulating effect on the whole organization.

In the brief time allotted to me I have had only an opportunity to skim over the surface of a plan which is working successfully in many large companies. I shall be glad to answer any specific questions, and go into as much detail as the time left to us will permit. Briefly my whole message can be summed up in the title to this talk. "Have a very definite plan for your business, which coordinates the individual plans of all the several departments and activities and then see that that plan works."

Reverses Decision Against Diana Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HARRISVILLE, N. Y., March 2, 1929.—Attorney C. A. Phelps has received notice that Federal Judge Frederick H. Bryant has reversed the decision of Referee in Bankruptcy John Conboy in the matter of the claims of Brown Brothers, kraft paper manufacturers of Maine, against the bankrupt Diana Paper Company, of this place. Brown Brothers made claim for $5,955.66 against the bankrupt concern and Referee in Bankruptcy Conboy allowed the claim. Attorney Phelps, counsel for D. B. Schuyler, trustee, appealed the matter to Federal Court. The appeal was based on a technicality that the claim had not been filed in time to meet the date of closing of receiving claims as provided under the bankruptcy laws. Judge Bryant held that the claims had been mailed before April 9, 1927, the last day set. Attorney Benjamin B. Sanders, of Portland, Me., widely known counsel, with Attorney Delos M. Cosgrove represented the firm of Brown Brothers in the proceedings. It is not expected that Attorney Sanders will appeal the case and in the event he does not this will close the affairs of the Diana Paper Company.



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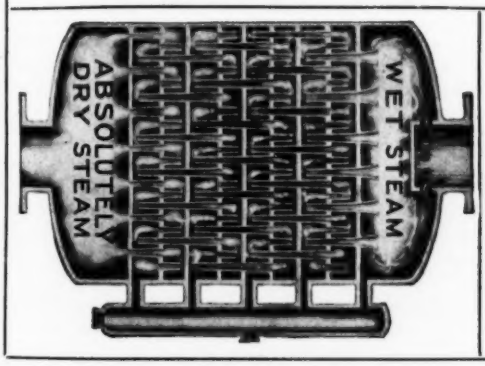

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PETITE—No. 277,394. Universal Crepe & Tissue Mills, Inc., New York City. For toilet paper.

WASWOOD—No. 277,538. Fort Howard Paper Company, Green Bay, Wis. For toilet paper, paper towels, paper napkins, paper doilies, paper tablecloths, and tissue paper.

MYFILE—No. 260,222. The Globe-Wernicke Company, Norwood, Ohio. For paper files for correspondence.

WORLD'S FAIR—No. 263,682. Berkshire Papers Inc., Chicago. For writing and printing paper.

A with shield and AMERICAN LOOSE LEAF—No. 267,688. American Loose Leaf Corporation, New York City. For loose-leaf binders, loose-leaf sheets and parts thereof.

CRINKLE CUPS—No. 275,066. Oldmill Paper Products Corporation, Brooklyn, N. Y. For paper cups.

HANDINAP—No. 276,134. Fort Howard Paper Co., Green Bay, Wis. For paper napkins.

MILESTONE BOND—No. 275,874. Mount Holly Paper Company, Mount Holly Springs, Pa. For bond and ledger paper.

INTERNATIONAL—No. 274,879. International Mailing Tube and Wrapper Company, Brooklyn, N. Y. For paper and card board mailing wrappers, mailing cartons, and envelopes, for shipping merchandise.

GRAUSTARK BOND—No. 275,568. Wm. T. Knott Company, Inc., New York City. For writing, ledger, and bond paper.

SECURPAC—No. 277,111. Hammond Bag and Paper Company, Wellsburg, W. Va. For paper bags.

A MILPRINT PRODUCT—No. 270,751. Milwaukee Printing Company, Milwaukee, Wis. For folding cardboard boxes.

LA SALLE—No. 276,439. S. E. & M. Vernon, Inc., New York City. For loose-leaf binders, bound blank books, and composition books.

PAPERCRAFTERS—No. 267,605. The Reynolds Manufacturing Company, Holyoke, Mass. For writing and printing paper.

B C (monogram)—No. 270,165. Barton-Cotton, Inc., Baltimore, Md. For writing and printing paper, envelopes, filing envelopes, etc.

DENBLANX—No. 277,656. Buffalo Office and Law Supply Company, Inc., Buffalo, N. Y. For legal blanks.

PINTO—No. 276,911. Blake, Moffitt & Towne, San Francisco, Cal. For paper bags.

SUNSET—No. 276,912. Blake, Moffitt & Towne, San Francisco, Cal. For paper bags.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 11, 1929.—As a whole, the paper situation here remains fairly favorable. Dealers are booking a sizable volume of orders for ledgers and bonds and other fine papers. The condition of the kraft market has improved, particularly in the No. 2 grade. Manufacturers have been withdrawing their prices, current for some time, believed unjustifiable on the basis of the cost of production, and advancing their quotation $10 a ton. A general advance, however, is not looked for.

A box board dealer states that he understands the price of board will be higher within the next two weeks. Some chip board can still be bought for a price under $35, but the general range is $35 to $37.50. Box makers are said to be less busy than they were, although the board mills continue to operate six days a week. A dealer intimates that if the board manufacturers curtailed production by operating only five days a week, the industry would be on a better basis.

The position of old papers is similar to that of a week ago. Prices are unquotably changed in nearly all grades, although No. 1 books, heavy, tend towards lower levels. Foreign manila rope is very strong and quotable at 4.12½ to 4.25, although some name as low a figure as 4.00. Domestic rope is also very firm, with the maximum figure at 4.50, although it is understood that it may also be obtained at 4.25.

New domestic rags are at practically the same levels. The general trend in old domestic rags is towards a larger volume of orders. It is expected that prices will be higher. Foreign roofing rags are firm, with an advancing tendency. Dark cottons are quotable at 1.60 to 1.65, compared with a previous range of 1.55 to 1.60. Old linsey garments are higher, the quotation of 1.85 to 1.95 comparing with 1.80 to 1.85 a week ago.

Toombs Paper Corp. To Move To Boonville

[FROM OUR REGULAR CORRESPONDENT]

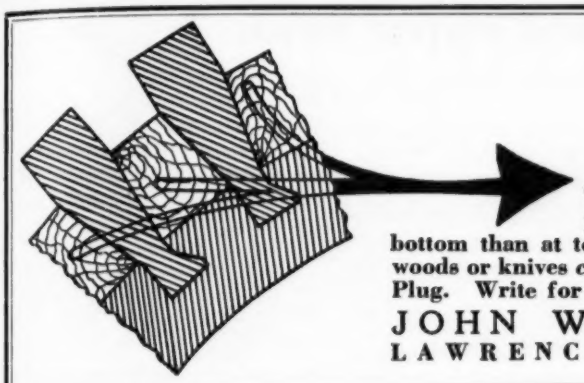
BOONVILLE, N. Y., March 2, 1929.—The Toombs Paper Corporation, of Carthage, has plans under way for removal of its plant to this place within two weeks when it is expected that operations here will be in full sway. Officials of the company have been investigating conditions relative to locating here and its decision was largely influenced by the efforts of the Boonville Chamber of Commerce which has made arrangements for a lease of the Comstock Building. Terms of the lease are understood to guarantee operations here for several years at least which is good news to the residents. Necessary alterations are now being made to the structure by H. G. Klosner, contractor, in preparation of the immediate removal of the plant here. W. R. Toombs, head of the corporation, is now in town overseeing the work and he has already made arrangements whereby his family will occupy the old Best homestead on Main street. The new industry will manufacture various kinds of paper boxes for bakeries, berry boxes, ice cream pails and butter trays.

Blake, Moffitt & Towne Have Annual Banquet

On Saturday evening, February 16, at the Alexandria Hotel, was held the Seventh Annual Banquet of the Los Angeles Division of Blake, Moffitt & Towne. At these banquets every employee of the house, from the newest office boy to department heads, receives an invitation and is equally welcome. Those in attendance numbered well over 200 including a few invited guests among the mill men, resident in Los Angeles.

F. M. Couch, the vice-president and general manager at Los Angeles, was the toastmaster. A feature of the evening was the presentation of the service buttons to those employees whose service to the house had been marked by a five year period, such as five, ten, fifteen years, etc. J. W. Towne, first vice-president of the corporation, who came from San Francisco to attend the banquet made the presentation.

During the evening a very enjoyable musical program was given and this affair was concluded with a dance.



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The biggest improvement in Jordan engineering in years. Look at the diagram! Wedge woods larger at bottom than at top—just the opposite of the old style construction—woods or knives *cannot* come out. Available only in the Bolton Bandless Plug. Write for complete information.

JOHN W. BOLTON & SONS, INC.
LAWRENCE . . . . MASSACHUSETTS
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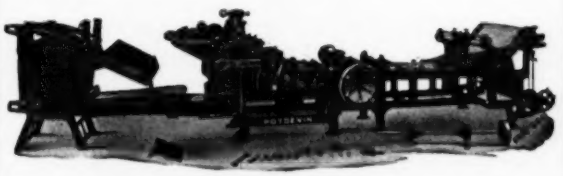
NEW **POTDEVIN** SACK

CEMENT BAG MACHINE



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Prompt deliveries made from stocks in
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Business with a smile

Courtesy is the oil that lubricates the business machine.

It is freely applied in every Heller & Merz transaction. Not as a studied policy. Rather, because this organization is genuinely interested in giving to each transaction a pleasant, as well as a profitable, character.

The quality of Heller & Merz Colors intensifies the pleasure of doing business with us.

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505 Hudson St., New York

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Factory—NEWARK, N. J.

Union Screen Plate Company

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE

SCREEN PLATES FOR FLAT SCREENS
6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

Old Plates Reclosed and Re-cut to Accurate Gauge
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the Union-Witham Screen Plate Vat and Fastener

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 9, 1929

SUMMARY

Cigarette paper .....226 cs.
Wall paper .....82 bls., 43 cs.
Paper hangings .....48 bls., 7 cs.
News print .....617 rolls
Printing paper .....213 cs.
Wrapping paper .....3 rolls
Packing paper .....28 cs.
Baryta coated paper .....198 cs.
Gold coated paper .....4 cs.
Photo paper .....4 cs.
Marble paper .....1 cs.
Filter paper .....12 bls., 14 cs.
Tissue paper .....61 cs.
Tracing paper .....6 cs.
Decalcomania paper .....63 cs.
Colored paper .....131 cs.
Writing paper .....79 cs.
Tissue paper envelopes.....10 cs.
Stencil paper and ink.....95 cs.
Miscellaneous paper.....200 rolls, 117 bls., 12 cs.

CIGARETTE PAPER

British American Tobacco Co., Berengaria, Southampton, 100 cs.
P. J. Schweitzer, Pres. Van Buren, Marseilles, 126 cs.

WALL PAPER

Globe Shipping Co., Cleveland, Hamburg, 29 bls.
American Exchange Irving Trust Co., Cleveland, Hamburg, 35 cs.
F. A. Binder, Dresden, Bremen, 6 bls.
R. F. Downing & Co., Minnekahda, London, 26 bls., 5 cs.
W. H. S. Lloyd & Co., Minnekahda, London, 2 bls.
F. J. Emmerich, Minnekahda, London, 1 cs.
F. J. Emmerich, Doric, Liverpool, 19 bls.
Universal Car Loading Co., Pres. Harding, Bremen, 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnekahda, London, 48 bls., 7 cs.

NEWS PRINT

Perkins Goodwin & Co., Cleveland, Hamburg, 441 rolls.
Times Union, Gripsholm, Gothenburg, 94 rolls.
Hudson Trading Co., Gripsholm, Gothenburg, 82 rolls.

PRINTING PAPER

Japan Paper Co., N. Amsterdam, Rotterdam, 5 cs.
E. Dietzgen & Co., N. Amsterdam, Rotterdam, 79 cs.
Overton & Co., N. Amsterdam, Rotterdam, 3 cs.
E. Dietzgen & Co., Cleveland, Hamburg, 35 cs.
Kupfer Bros., Dresden, Bremen, 9 cs.
Gallagher & Ascher, Dresden, Bremen, 10 cs.
Oxford University Press, American Banker, London, 1 cs.
Japan Paper Co., Sarcoxie, Havre, 23 cs.
C. Brunning & Co., Sarcoxie, Havre, 30 cs.
E. Dietzgen & Co., Sarcoxie, Havre, 18 cs.

WRAPPING PAPER

A. Johnson & Co., Gripsholm, Gothenburg, 3 rolls.

PACKING PAPER

Haule Wax Paper Manfg. Co., Cleveland, Hamburg, 28 cs.

BARYTA COATED PAPER

J. H. Schroeder Banking Corp., Dresden, Bremen, 96 cs.
Globe Shipping Co., Dresden, Bremen, 55 cs.
Globe Shipping Co., Pres. Harding, Bremen, 22 cs.
J. H. Schroeder Banking Corp., Pres. Harding, Bremen, 25 cs.

GOLD COATED PAPER

F. Murray Hill, Dresden, Bremen, 4 cs.

PHOTO PAPER

J. J. Gavin, Athenia, Liverpool, 4 cs.

MARBLE PAPER

Tamm & Co., American Banker, London, 1 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Aurania, Liverpool, 2 bls.
H. Reeve Angel & Co., Inc., Minnekahda, London, 12 cs.
A. Giese & Son, Berengaria, Southampton, 10 bls., 2 cs.

TISSUE PAPER

Old Master Paper & Pulp Corp., Cleveland, Hamburg, 41 cs.
F. B. Vandegrift & Co., Athenia, Liverpool, 17 cs.
A. Giese & Son, American Banker, London, 3 cs.

TRACING PAPER

Keuffel & Esser Co., Cleveland, Hamburg, 6 cs.

DECALCOMANIA PAPER

L. A. Consmiller, Cleveland, Hamburg, 10 cs.
C. W. Sellers, Cleveland, Hamburg, 14 cs.
Phoenix Shipping Co., Cleveland, Hamburg, 2 cs.
B. F. Drakenfeld & Co., Athenia, Liverpool, 37 cs.

COLORED PAPER

Tamm & Co., Cleveland, Hamburg, 5 cs.
E. Dietzgen & Co., Cleveland, Hamburg, 64 cs.
Universal Car Loading Co., Dresden, Bremen, 7 cs.
S. Gilbert, Dresden, Bremen, 23 cs.
F. L. Kramer & Co., Dresden, Bremen, 3 cs.
M. Ward, Inc., Pres. Harding, Bremen, 8 cs.
S. Gilbert, Pres. Harding, Bremen, 9 cs.
Whiting & Patterson Co., Inc., Pres. Harding, Bremen, 1 cs.
P. H. Petry & Co., Pres. Harding, Bremen, 1 cs
Owen Card Publishing Co., Pres. Harding, Bremen, 19 cs.

WRITING PAPER

G. W. Sheldon & Co., Berengaria, Southampton, 2 cs.
Globe Shipping Co., Berengaria, Southampton, 2 cs.
American Express Co., Pres. Van Buren, Marseilles, 75 cs.

TISSUE PAPER ENVELOPES

J. B. Mast & Co., Roma, Genoa, 10 cs.

STENCIL PAPER AND INK

Arlac Dry Stencil Co., Cleveland, Hamburg, 95 cs.

MISCELLANEOUS PAPER

Japan Paper Co., Roma, Genoa, 1 cs.
H. Reeve Angel & Co., Inc., Gripsholm, Gothenburg, 68 bls., 101 rolls.
Wilkinson Bros. & Co., Inc., Gripsholm, Gothenburg, 23 bls., 99 rolls.
C. K. MacAlpine & Co., Gripsholm, Gothenburg, 26 bls.
E. H. Sergeant & Co., Gripsholm, Gothenburg, 7 cs.
J. H. Schroeder Banking Corp., Pres. Harding, Bremen, 4 cs.

RAGS, BAGGINGS, ETC.

Overton & Co., N. Amsterdam, Rotterdam, 103 bls. bagging.
International By-Products Corp., N. Amsterdam, Rotterdam, 71 bls. bagging.
The Barrett Co., London Merchant, London, 219 bls. rags.
Atlas Waste Manfg. Co., San Lorenzo, San Juan, 44 bls. rags.
J. Cohen & Co., Inc., Aurania, Liverpool, 137 bls. rags.
Amtorg Trading Co., Cleveland, Hamburg, 11 bls. rags.
Equitable Trust Co., Dresden, Bremen, 12 bls. rags.
American Exchange Irving Trust Co., Dresden, Bremen, 36 bls. rags.
M. Lobsitz, City of Alton, Rotterdam, 3 bls. rags.
Green Hamilton & Co., City of Alton, Rotterdam, 78 bls. cotton waste.
Royal Manfg. Co., City of Alton, Rotterdam, 97 bls. cotton waste.
J. Cohen Son & Co., Athenia, Liverpool, 36 bls. paper stock.
Castle & Overton, Inc., Athenia, Ireland, 67 bls. rags.
Castle & Overton, Inc., Minnekahda, London, 48 bls. rags.
T. D. Downing & Co., Minnekahda, London, 16 bls. rags.
Jebb Bros., Cameronia, Glasgow, 67 bls. rags.
A. W. Fenton, Inc., Cameronia, Glasgow, 43 bls. bagging.
Flintkote Co., Bannack, Manchester, 65 bls. rags.
B. D. Kaplan, Bannack, Manchester, 5 bls. rags.
E. J. Keller Co., Inc., Bannack, ——, 67 bls. bagging.
Castle & Overton, Inc., Sarcoxie, Havre, 121 bls. rags.
Castle & Overton, Inc., Sarcoxie, Havre, 106 bls. bagging.
J. Cohen Sons Co., Sarcoxie, Havre, 49 bls. rags.
B. D. Kaplan, Sarcoxie, Havre, 31 bls. rags.
Darmstadt, Scott & Courtney, Sarcoxie, Havre, 167 bls. bagging.
V. Galaup, Sarcoxie, Havre, 137 bls. bagging.
Darmstadt, Scott & Courtney, Sarcoxie, Dunkirk, 69 bls. rags.
Salomon Bros. & Co., Sarcoxie, Dunkirk, 239 bls. rags.
J. Cohen Son & Co., Doric, Liverpool, 16 bls. rags.
S. Birkenstein & Sons, Austvard, Valencia, 103 bls. rags.
National City Bank, Austvard, Marseilles, 109 bls. rags.
Banco Com'l Italiane Trust Co., Austvard, Leghorn, 102 bls. rags.
Banco Com'l Italiane Trust Co., Austvard, Genoa, 85 bls. bagging.
Darmstadt, Scott & Courtney, Austvard, Genoa, 97 bls. bagging.
E. Butterworth & Co., Inc., Austvard, Genoa, 63 bls. rags.
E. J. Keller Co., Inc., Austvard, ——, 25 bls. rags.
E. J. Keller Co., Inc., Austvard, ——, 16 bls. linen cuttings.
E. J. Keller Co., Inc., Excello, ——, 407 bls. rags.
A. W. Fenton, Inc., Pres. Harding, Bremen, 37 bls. rags.
Castle & Overton, Inc., Conehatta, South America, 395 bls. rags.

OLD ROPE

Brown Bros. & Co., New York City, Bristol, 169 coils.
Brown Bros. & Co., City of Alton, Rotterdam, 75 coils.
Brown Bros. & Co., Minnekahda, London, 58 coils.
Brown Bros. & Co., Francisco, Aberdeen, 69 coils.
Brown Bros. & Co., Sarcoxie, Havre, 76 coils.
E. J. Keller Co., Inc., Sarcoxie, ——, 74 bales.
N. E. Berzen, Austvard, Marseilles, 54 coils.
Brown Bros. & Co., Austvard, Genoa, 207 coils, 28 bls.
Castle & Overton, Inc., Cameronia, Glasgow, 46 coils.

CHINA CLAY

National City Bank, New York City, Bristol, 390 bags.

CASEIN

Crawford Keen & Co., Conehatta, Buenos Aires, 417 bags, 25,020 kilos.
Atterbury Bros., Inc., Conehatta, Buenos Aires, 834 bags, 50,040 kilos.
T. M. Duche & Sons, Sarcoxie, Havre, 200 bags, 15,000 kilos.

WOOD PULP

Atterbury Bros., Inc., Hellig Olav, Oslo, 750 bls. wood pulp.
Chemical National Bank, Cleveland, Hamburg, 256 bls. wood pulp, 51 tons.
Irving Trust Co., Cleveland, Hamburg, 506 bls. wood pulp, 102 tons.
Bulkley, Dunton & Co., Gripsholm, ——, 570 bls. sulphate.
E. M. Sergeant & Co., Gripsholm, Gothenburg, 299 bls. dry soda pulp.
Johanson, Wales & Sparre, Inc., Gripsholm, Gothenburg, 299 bls. dry soda pulp.
Price & Pierce, Ltd., Gripsholm, Gothenburg, 1,000 bls. wood pulp.

WOOD PULP BOARDS

C. K. MacAlpine & Co., Gripsholm, Gothenburg, 37 bls.

WOOD FLOUR

The Burnet Co., Gripsholm, Gothenburg, 290 bags.

BOSTON IMPORTS

WEEK ENDING MARCH 9, 1929

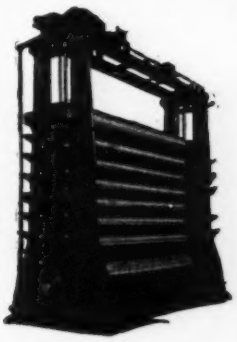
Brown Bros. & Co., Missouri, London, 189 coils old rope.
Hobson Houghton Co., Missouri, London, 13 cs. printing paper.
Crocker Burbank Co., Missouri, London, 541 bls. waste paper.
Brown Bros. & Co., Missouri, London, 19 bls. rags.
Brown Bros. & Co., Missouri, London, 184 bls. waste paper.
The Southworth Co., Missouri, London, 38 bls. rags.
1st National Bank of Boston, Balzac, Buenos Aires, 417 bags casein.
Brown Bros. & Co., Francisco, Hull, 119 coils, 151 bls. old rope.
Brown Bros. & Co., Francisco, Aberdeen, 178 coils old rope.
Bulkley, Dunton & Co., Ragnhildsholm, ——, 2,625 bls. wood pulp.
E. J. Keller Co., Inc., Saco, ——, 265 bls. rags.
E. J. Keller Co., Inc., Beemsterdyk, ——, 82 bls. rags.
Castle & Overton, Inc., Seattle Spirit, Germany, 587 bls. rags.
Castle & Overton, Inc., Wales Maru, Japan, 322 bls. rags.

(Continued on page 74)

LOBDELL

Chilled Iron Calender and Press Rolls
Automatic Roll Grinding Machines
Improved Micrometer Roll Calipers

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE.



FAIRBANKS' "SPHERO"

The Perfect "Blow-Off" Valve
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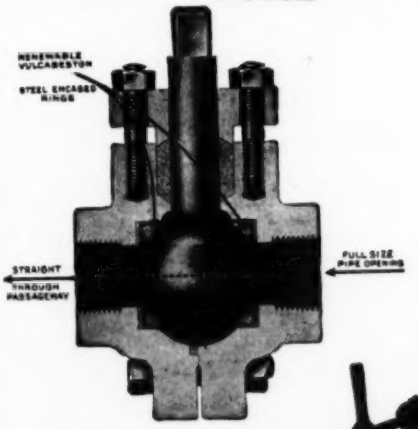

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For economy, water filter lines should be TAYLOR *Spiral Riveted* PIPE . . .

A permanent system without the clumsy weight that costs so much in time and money during erection.

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JUTE BUTTS, MAGAZINES, CATALOGS, OLD PAPERS, THREAD WASTE AND ALL GRADE OF RAGS CUT QUICKLY AND EFFICIENTLY WITH THE

GIANT The Standard of the World for 59 Years

Giant Rag Cutters have capacities of from 1 to 5 tons per hour

This is the GIANT 3-B CUTTER WITH A CAPACITY OF 3000 lbs. PER HOUR

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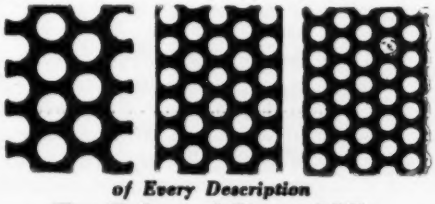
PERFORMATED METALS



of Every Description
For Pulp and Paper Mills
THE HARRINGTON & KING PERFORATING CO.
5652 Fillmore St., Chicago, Ill.
NEW YORK OFFICE: 114 Liberty St.

Imports of Paper and Paper Stock

(*Continued from page 72*)

BALTIMORE IMPORTS

WEEK ENDING MARCH 9, 1929

E. J. Keller Co., Inc., Westpool, ——, 1,317 bls. wood pulp.
Bulkley, Dunton & Co., Carlsholm, ——, 2,150 bls. wood pulp.
Bulkley, Dunton & Co., Westfalen, ——, 638 bls. wood pulp.
Bulkley, Dunton & Co., Ulvo, ——, 1,250 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 9, 1929

J. A. Steer & Co., New York City, Bristol, 143 bls. waste paper.
G. M. Graves & Co., London Merchant, London, 136 bls. rags.
E. J. Keller Co., Inc., London Merchant, ——, 152 bls. rags.
Paper Service Co., London Merchant, London, 6 rolls wrapping paper.
W. J. Jones Co., Sarcoxie, Havre, 11 cs. wall paper.
J. E. Bernard & Co., Sarcoxie, Havre, 49 cs. printing paper.
J. M. Hagy Waste Works, Sarcoxie, Havre, 69 bls. rags.
Castle & Overton, Inc., Sarcoxie, Havre, 185 bls. rags.
V. Galaup, Sarcoxie, Havre, 77 bls. rags.
D. I. Murphy, Sarcoxie, Havre, 761 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Dunkirk, 537 bls. rags.
D. I. Murphy, Sarcoxie, Dunkirk, 250 bls. rags.
F. Whitaker & Co., Sarcoxie, Dunkirk, 9 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Dunkirk, 5 bls. rags.
Union Waste Co., Sarcoxie, Dunkirk, 42 bls. rags.
National Waste Co., Sarcoxie, Dunkirk, 69 bls. rags.
Castle & Overton, Inc., Exchange, France, 68 bls. rags.
Castle & Overton, Inc., Oregonian, Japan, 321 bls. rags.
Castle & Overton, Inc., Saco, Antwerp, 137 bls. rags.
Castle & Overton, Inc., J. Skinner, Germany, 400 bls. wood pulp.
E. J. Keller Co., Inc., Natirar, ——, 650 bls. wood pulp.
E. J. Keller Co., Inc., Excellency, ——, 147 bls. rags.

Storrs & Bement Co. Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, MASS., March 11, 1929.—At a meeting of the stockholders of the Storrs & Bement Company, March 9, at the offices of the company, 282 Congress street, the following officers were elected:

William N. Stetson, Jr., president and treasurer; George L. Webb, vice president; E. L. Cummings, vice president; John H. Brewer, secretary and general manager, and Raymond B. Nichols, assistant treasurer. The officers constitute the board of directors.

Mr. Stetson has been in the paper merchandising business since 1910. From that year until October, 1919, he was connected with the Bay State Paper Company, which was later taken over by the Whitaker Paper Company. He acquired an interest in Storrs & Bement Company in 1919 with F. B. Cummings and E. L. Cummings, and has taken over the active management of the company's affairs.

Mr. Webb has been with the company for approximately 35 years and in 1919 acquired an interest in it. For about 12 years he has been manager of the New Haven branch and will continue in that capacity.

Mr. Cummings has been in charge of the Providence office since 1919 and will remain in that capacity.

Mr. Brewer has been with the company about nine years. During the first few years of his employment he was in charge of the company's Linweave Announcement Department. Early in 1928 Mr. Brewer was made general manager and will continue his activities in that position.

Mr. Nichols has been with the company about three years and is in charge of the Accounting and Credit Departments.

The Storrs & Bement Company will continue to operate on the same basis as in the past. Strict adherence will be paid to the company's traditions. The policies laid down by such leaders in the paper merchandising business as W. F. McQuillen, W. B. Stevenson and F. B. Cummings will be carried out to the best ability of the new executives.

Crown Zellerbach Earnings

Consolidated net earnings of Crown Zellerbach corporation and subsidiaries for the first three quarters of the current fiscal year, to January 31, 1929, were equivalent to $1.48 per share of common stock or at the annual rate of $1.99 per share. This compares with earnings of $1.16 per share for the same nine months period a year ago, or at an annual rate of $1.55, according to a report released by Blyth & Co.

Gross profits for the third quarter were $2,910,579, a gain of 13 per cent over the third quarter of last year. After all deductions and reserves, the balance available for dividends was $990,654, a gain of 14 per cent over the previous third quarter.

To Build Straw Pulp Mill at Palouse, Wash.

Plans for a $150,000 mill to manufacture paper pulp from straw at Palouse, Wash., were announced at Palouse.

A group of Palouse and Moscow, Idaho, business men have filed articles of incorporation at Olympia for $270,000 and hope to start construction of the plant some time this spring or summer. Options have been secured on a number of sites.

More than $40,000 toward the project has been subscribed by the incorporators.

The plant will employ 35 and will turn out 20 tons of pulp daily.

A. L. Maxwell has been elected president of the company which will operate the mill and E. L. Smith is vice president. Both are from Palouse. An experienced paper man will be employed as manager. Other incorporators are: George W. Lamphere, Mossow, and A. J. Webster, Charles E. Day, H. D. Wagnon, E. E. Boone, F. H. Ankcorn and J. A. McMillan, all of Palouse.

The mill probably will use electricity for power. Straw will be provided from the grain fields of the surrounding country and will bring farmers a price of from $3 to $5 a ton. It is pointed out that the new process makes it possible to make a finer product than wood pulp at less cost. The paper will be marketed in the Middle West.

Superintendents To Meet at Lynchburg

The Southeastern Division of the American Pulp and Paper Mill Superintendents Association has definitely decided to hold its spring meeting at Lynchburg, Va., on Saturday, March 23. The headquarters for the meeting will be at the Virginian Hotel.

The committee of arrangements is hard at work on the program and intends to make this meeting one of the largest and best in every respect that it has ever held.

Bids for Government Paper

WASHINGTON, D. C., March 13, 1929.—Secretary of the Treasury, A. W. Mellon, has announced that bids will be received on April 11 from manufacturers of bond, bank-note and other fine papers, for furnishing distinctive paper required for the printing of United States currency and public debt securities, national bank notes, Federal reserve notes, etc., for the fiscal year beginning July 1.

Eddy Paper Corp. Income Lower

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 11, 1929.—The Eddy Paper Corporation reports consolidated net income of $136,815 for 1928, equal to 83 cents a share on 165,000 shares of no par common stock. This compares with net income of $317,748 and $1.93 a share in 1927.

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

200 Fifth Avenue, New York — 732 Sherman Street, Chicago

503 Market St., San Francisco, Cal.

122 East 7th St., Los Angeles, Cal.

Sixth and Chestnut Sts., Philadelphia, Pa.

Tycos Catalogs
should be on the desk of every individual interested in the Indicating, Recording and Controlling of HEAT
Tycos Thermometers

Tycos

Paper and Pulp Mill engineers thruout the country have proven that it "pays to analyze." The analysis of raw materials and the finished product permits buying and selling on definite specifications with a consequent saving to you.

We particularly specialize in the
Analysis of paper mill materials.
Analysis of paper of all kinds.
Solving problems of paper manufacture.
Development of mill control tests.

An opportunity to demonstrate the value of our service to your organization is requested.

New England Laboratories

PULP AND PAPER DIVISION

(FORMERLY THE EMERSON LABORATORY)

SPECIALISTS IN THE PAPER FIELD

121 CHESTNUT STREET, SPRINGFIELD, MASSACHUSETTS

BROWN COMPANY'S ALPHA GRADES

of Purified Cellulose Fibre representing some of the valuable results of our many years of research in cellulose chemistry.

SUPER ALPHA

for strength in Tear, Fold and Mullen. Super Alpha equals the higher grades of rags in the manufacture of fine papers.

EASY-BEATING ALPHA

This is a grade developed for mills of limited beating capacity. While not giving results equal to Super Alpha, it produces wonderful paper on short beating.

REGULAR ALPHA

This is a grade midway between Super and Easy-Beating.

Use ALPHA for Quality

BROWN COMPANY

FOUNDED 1852

Portland, Maine

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 13, 1929.

Trading in the local paper market was fairly active during the past week. With weather conditions more seasonal and the approach of Easter, the sales forces of the leading paper organizations are experiencing a busier time and further expansion of the industry is confidently anticipated. Prices of the various grades are generally firmer and the immediate outlook is encouraging.

Now that news print prices have been stabilized at $62 per ton, on standard rolls, delivered New York, consumption should expand materially, as publishers stocks are reported to be low and in need of replenishing. Production is running at about 74 per cent of capacity and accumulations are not excessive, so that the market is in a fairly sound position.

Paper board production is being maintained in heavy volume but the price situation is still involved. In some quarters a change for the better is looked for in the near future. The fine paper market is exhibiting a strong undertone. Some improvement has been noticed in the coarse paper market and the recent advances in the price of kraft are being maintained.

Mechanical Pulp

Offerings of ground wood pulp were somewhat limited, due to the fact that production has been considerably curtailed on account of unfavorable weather conditions. Contract shipments have been moving in fairly heavy volume. Prices of both domestic and imported mechanical pulp rule steady to firm and there is little talk of concessions around.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Both foreign and domestic producers are well sold ahead. The Swedish pulp mills have already sold from 15 to 20 per cent of their production for 1930. Prices are firmer. Imported bleached sulphite is now quoted at from 3.75 to 4.40, easy bleaching is selling at from 2.85 to 2.90, and mitcherlich unbleached at from 2.60 to 3.25.

Old Rope and Bagging

Demand for old rope is heavy and prices are somewhat firmer. No. 1 domestic manila rope is now quoted at from 4.00 to 4.25, while No. 1 foreign manila rope is offered at from 3.75 to 4.00. Mixed strings are practically unchanged. The bagging market is also showing signs of improvement and roofing grades are particularly active.

Rags

The domestic rag market is more buoyant than of late. Cotton cuttings are in better demand and roofing rags are also arousing more interest. Mixed rags are moving in good volume. The situation of the foreign rag market has improved somewhat Roofing grades are in particularly good request. Prices of both domestic and foreign rags are generally steady to firm.

Waste Paper

Conditions in the paper stock market are practically unchanged. The lower grades of waste paper are still in excellent request from the paper board mills. Book stock continues moderately active. Old kraft paper is rather quiet at present. There is some revival of interest in soft white shavings. No radical price changes were recorded.

Twine

The twine market continues active. With wrapping paper moving in seasonal volume, steadily improved conditions are anticipated until the end of the Easter season, at least. Quotations on the various grades are being maintained at the levels which have been in force for some time past.

Mr. Whiting Returns from Washington

HOLYOKE, Mass., March 12, 1929.—William F. Whiting of the Whiting Paper Company who has been for several months Secretary of Commerce for the United States returned home Wednesday morning having taken the night Federal express from Washington. After breakfast he was found at his mill office as usual just as though he had come back from a pleasure trip.

He received a number of Boston and Springfield newspaper men and chatted informally about his experiences. He told the men that he was convinced that it would be for the great interest of New England manufacturers to have a representative from that section permanently located at Washington. The cost, he said, would not be as much as the cost of sending down the delegations that appear during the year for this or that purpose.

The government officials are trying to be fair but at times they fail to understand New England's needs and this representative on the ground could show them. If the situation got beyond him at any time he could send for help. In the case of the establishment of the St. Lawrence river-to-the-gulf waterway he thought a revised rate, differential, would also become necessary.

Superintendents to Meet at Wilmington

The Pennsylvania-New Jersey Division of the American Pulp and Paper Mill Superintendents Association will meet at the Hotel Dupont in Wilmington, Del., Saturday, April 6.

An interesting program has been prepared, with mill visits in the morning and papers and discussions in the afternoon. The luncheon and banquet will be served at the Hotel Dupont. Those who wish to come Friday night can find accommodations at the hotel. Representatives of the supply and equipment companies will be welcome.

Chope Stevens Agents for Hamilton Lines

MIGNON, PA., March 12, 1929.—W. C. Hamilton & Sons announce that the Chope Stevens Paper Company of Detroit, Mich., have been appointed the exclusive agents for all Hamilton lines. They are carrying in stock the following: Hamilton Bond, Hamilton's Ledger, Mimeopen Bond, Laid Mimeograph, Cloudweave, Hamilton's Vellum, Spring Mill Wedding, Bright White English Finish, Bright White Super, Italian Pressed, Hamilton's Victorian, Hamilton's Laimark, Laid Script, Kilmory.

Government Receives Bids

The Government Printing Office has received the following bids for 23,485 pounds of 38x48 307, 75 per cent rag book paper, plate finished; Whitaker Paper Company, at 17.42 cents per pound; R. P. Andrews Paper Company, 21 cents; Reese & Reese, 17.99 cents; Worthy Paper Company, 24 cents; and American Writing Paper Company, 20 cents.

FINE FACE FELTS— FOR FINE PAPERS

ENGLISH or BAKER WOVEN

Absolutely leave no felt marks in paper. TRIUNE Three Ply Felts insure large production. Made from

60" TO 214" WIDE

FITCHBURG DUCK MILLS
FITCHBURG, MASS.

82 Years Making Fine Face Felts for papermakers

ALBANY GREASE
Oils and Greases of Quality
For Every Lubrication Requirement

All Albany Lubricants:

Albany Grease
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Graphite Grease
Transmission Grease
Fibre Grease
Launching Grease
Automobile Oils
Steam Cylinder Oils
Machinery Oils
Marine Engine Oils
Turbine Oils
Diesel Oils
Transformer Oils

For 61 years **Albany Grease** has been the standard by which all other lubricants have been compared. Its use on paper mill equipment is world wide because of its exceptionally fine lubricating qualities. Try XXX Albany for the rolls—a high temperature grease. Albany is a tallow compound—100% pure; feeds gradually—never drips. Made in all consistencies.

Albany Pressuregrease

Soft, Medium, Hard, Graphite and Transmission

Albany Pressuregrease is a highly refined mineral oil grease, for pressure guns, grease cups, mechanical lubricators, roller bearings, automobiles, differentials and wherever experience has proven that a mineral oil grease is most desirable. The 1- and 5-pound cans of the soft numbers are fitted with removable plungers for the use of any type grease gun.
Albany Oils and Greases fulfill every lubrication requirement—Sold on a quality basis.

Send for special roll grease sample Your dealer can supply you. If not, write us.

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ALBANY GREASE
Millions of Pounds Used Annually

The
ST. REGIS PAPER COMPANY

Daily Capacity
525 TONS

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General Sales Office
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Pittsburgh, Pa.

Fourdrinier Wires, all widths up to 300 inches

DIMOND WIRES

NEUMEYER & DIMOND
Established 1904
82-92 Beaver St. New York

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 13, 1929.

BLANC FIXE.—The blanc fixe market is in a sound position. Demand for both the pulp and the powder is seasonal. The pulp is still quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Shipments against contract are moving in a normal manner. Prices are holding to schedule, in most instances. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—The casein market was irregular and prices declined slightly. Domestic casein is now quoted at from 16 cents to 16½ cents per pound, while standard ground imported is selling at 16 cents per pound and finely ground at 16½ per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Supplies of caustic soda are moving into consumption in excellent volume. Demand for this product is persistent. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is practically unchanged. Shipments against contract are going forward regularly. Prices are steady. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Consumption of chlorine is being maintained in satisfactory volume. Prices are holding to previously quoted levels. Chlorine is quoted at 3 cents per pound, in tanks, or multi-unit cars, at works, on standard contracts. The spot quotation ranges from 3¼ cents to 3½ cents per pound.

ROSIN.—The rosin market is somewhat weaker. At the naval stores, the grades of gum rosin used in the paper mills are now quoted at from $8.25 to $9.25 per 280 pounds, ex dock, in barrels. Wood rosin is selling at from $7.00 to $7.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Demand for salt cake continues excellent. Shipments against contract are proceeding at a satisfactory pace. Prices remain unchanged. Salt cake is still quoted at from $16 to $18 per ton, while chrome salt cake is selling at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—The undertone of the soda ash market is strong. Production is being maintained in sufficient volume to take care of current needs. Prices are unaltered. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—Most of the business transacted in the starch market was along routine lines. The contract movement is about normal for the season. Prices are unchanged. Special paper making starch is quoted at $3.82 per 100 pounds, in bags, and at $3.99 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Trading in the sulphate of alumina market was fairly active. Prices are generally holding to previously quoted levels. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.55, and iron free at from $1.95 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market was moderately busy during the past week. Prices rule steady. Sulphur is quoted at $18 per ton, in lots of 1,000 tons, or over, on yearly contracts, and at $20 per ton, for any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Conditions in the talc market were rather quiet. Contract shipments are moving in normal volume. Prices are holding to schedule and shading is infrequent. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines, while imported talc is selling at from $18 to $20 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00

(Delivered New York)

News—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@ —
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.30	@ 4.50
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	37.50	@45.00
Straw	52.50	@55.00
Chip	35.00	@42.50
Binders' Boards	65.00	@67.50
Sgl. Mla. Ll. Chip	44.00	@47.50
Wood Pulp	80.00	@85.00
Container	52.50	@55.00
85 Test Jute Liner	47.50	@53.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Demestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.40
Easy Bleaching	2.85	@ 2.90
No. 1 strong unbleached	2.50	@ 2.80
Mitscherlich unbleached	2.60	@ 3.25
No. 2 strong unbleached	2.40	@ 2.50
No. 1 Kraft	2.50	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	375	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.50
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.50	@ 3.30
Soda Bleached	3.15	@ 3.30
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	4.50	@ 5.50
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.15	@ 2.30
French Blue Linens	2.65	@ 2.75
German Blue Linens	2.35	@ 2.55
German Blue Cottons	2.10	@ 2.20
Checks and Blues	1.80	@ 1.90
Lindsay Garments	1.80	@ 1.85
Dark Cottons	1.60	@ 1.65
Old Shopperies	1.50	@ 1.55
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bragging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.75	@ 4.00
Domestic	4.00	@ 4.25
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.50	@ 2.60
White envelope cuttings	3.25	@ 3.50
Flat Stock—		
Stitchless	1.70	@ 1.80
Overissue Mag.	1.70	@ 1.80
Solid Flat Book	1.65	@ 1.75
Crumpled No. 1	1.15	@ 1.25
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.70	@ 1.80
New B. B. Chips	.65	@ .75
New Env. Cut	2.40	@ 2.60
Manilas—		
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.75	@ .80
Container	.60	@ .65
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.75	@ 1.85
News—		
No. 1 White News	1.70	@ 1.75
Strictly Overissue	.85	@ .95
Strictly Folded	.65	@ .70
No. 1 Mixed Paper	.45	@ .50
Common Paper	.30	@ .35

FINE FELTS for FINE PAPERS

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SKANEATELES FALLS, N.Y.

A pie plate that revolutionized an industry

One big pie manufacturer recently rebuilt his trucks in order to deliver his pies on Paprus Plates rather than tins. Everywhere bakers are realizinz the advantages of Paprus Pie Plates. Moulded from pulp—not pressed from paper. Paprus Pie Plates are the only absorbent pie plates that absorb and retain their shape. Get your share of the business in Paprus Pie Plates. Write for Price list.

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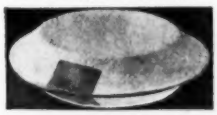

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General Sales Offices: GRAYBAR BLDG., NEW YORK
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Two Leading American Clays

H. T. BRAND
For Coating and Filling
Used extensively by Leading Paper Mills

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Filler Clay

Edgar Clays are the result of almost half century of experience in washing clay. Technical service available for both coating and loading without charge.

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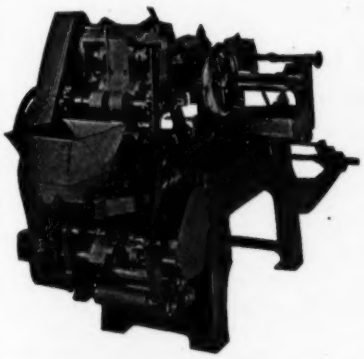

HIGHEST SPEED Paper Bag Machinery

Get My Quotations Before Placing Your Orders
Special Machinery Designed and Built

A. L. PARRISH
1702 Robinson St., South Bend, Ind.

Twines

F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.34
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Bock	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¾
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.70	@	.75
Ledger & Writings	1.45	@	1.50
Solid Books	1.25	@	1.40
Blanks	1.40	@	1.50
Krafts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.65	@	1.75
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.80	@	.85
Folded News (oversize)	.80	@	.85
Old Newspapers—			
No. 1	.70	@	.80
No. 2	.65	@	.70
Mixed Papers—			
No. 1	.65	@	.70
Roofing Stocks—			
(F. o. b Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.10	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	.20	@	.22
Fine, No. 2	.18	@	.26½
Fine, No. 3	.15	@	.25
Book, M. F.	.10	@	.20
Book, S. S. & C.	.06	@	.07
Book, Coated	.06	@	.07½
Coated Lithograph	.10	@	.16
Label	.07	@	.11
News	.07	@	.11
No. 1 Jute Manila	.03½	@	.04
Manila Sul., No. 1	.08½	@	.09
Manila No. 2	.04½	@	.05½
No. 2 Kraft	.03¾	@	.04
No. 1 Kraft	.06	@	.06½
Common Bogus	.06½	@	.07
Straw Board	.03½	@	.04
News Board	52.50	@	75.00
Chip Board	38.00	@	42.00
Wood Pulp Board	35.00	@	40.00
	85.00	@	95.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	53.00	@	55.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.83	@	2.08

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.08½	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Fancy			
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.50	@	2.60
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.45	@	1.55
No. 2 Books, light	1.20	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.65	@	.70
Straw Board, Chip	.65	@	.70
Binders Board, Chip	.65	@	.70
Overissue News	.85	@	.90
Old Newspaper	.65	@	.70

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2—			
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75
Repacked	.02½	@	.02¾
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings—			
Superfines	.07	@	.20
News	.11	@	.31
Book, Super	.03½	@	.04
Book, M. F.	.06	@	.09
Book, Coated	.05¾	@	.08½
Coated Litho	.08½	@	.20
Label	.09	@	.12
Jute Manila No. 1	.09½	@	.15
Manila, Sul. No. 1	.11	@	.13
Manila, Sul. No. 2	.04¾	@	.06½
No. 1 Kraft	.03¾	@	.04½
No. 2 Kraft	.05½	@	.06½
Common Bogus	.04¼	@	.05
Delivered New England points	.02	@	.02¾
Straw Boards, rolls .009	52.50		
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	50.00
Single White, Patent Coated Newsboard			
Bender	67.50	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.15	@	1.20
White Blank News	1.60	@	1.65
Old Kraft	1.85	@	1.90
Print Manila	.80	@	.90
No. 1 Mixed Paper	.55	@	.57½
Overissue News	.70	@	.85
Old Newspapers	.60	@	.65
Box Board, Chip	.55	@	.60

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.70	@	1.75
Manila Rope—			
Foreign	4.12½	@	4.25
Domestic	4.50	@	—
Mixed Strings	.90	@	1.00
Jute Wiil Strings	—	@	1.00
Scrap Burlaps	1.25	@	1.35
Scrap Sisal	1.60	@	1.80
Scrap Sisal for shredding	1.75	@	2.00
Wool Tares, heavy	1.90	@	1.50
New Burlap Cutting		@	2.00
Australian Wool Pouches	2.75	@	3.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¾
New Unbleached	.10	@	.10½
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas			
White No. 1—	.04½	@	—
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.25	@	2.35
Thirds and Blues—			
Repacked	2.00	@	2.15
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.60	@	1.65
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.10	@	5.50
New Checks & Blues	4.25	@	4.50
Old Fustians	1.90	@	—
Old Linsey Garments	1.85	@	1.95

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.70	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	.05½	@	—

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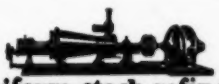
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THE MID-WEST MACHINE COMPANY
DAYTON, OHIO

Paper Mill Stocks and Bonds

Quoted by Taylor & White, 45 Wall street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Power & Paper 5s, 1943	90	91
Abitibi Power & Paper 6s, serially to 1934	100	102
American Writing Paper 6s, 1947	81	87
Bastrop Pulp & Paper 6½s, 1940	103	105½
Bedford Pulp & Paper 6½s, 1942	97	100
Belgo-Canadian Paper 6s, 1943	100	103
British-Columbia Pulp & Paper 6s, 1950	89	92
Brown Paper Mills Serial 6s, 1941	97	100
Brown Company 5½s, 1946	98	101
Bryant Paper 6s, 1942	98	101½
Canadian Paper Board 7s, 19337	97	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	95	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago, Debenture 6s, 1936	95	98
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	78	...
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	95	...
Champion Paper Corp. 6s, 1945	95	98
Container Corp. of America Debenture 6s, 1936, ex-warrants	101	104
Continental Paper Products 6½s, 1943	90	99
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	101	102
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	80	...
Donnaconna Paper 5½s, 1948	93	...
Eastern Manufacturing Co. 7s, 1938	97	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Irange Paper 7s, 1942	101	...
Fort William Paper 6s, 1946	100	104
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	100	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	94	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
Itasca Paper & Prairie River Power Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Power Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	83	90
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Paper 6s, 1941	105	108
Marathon Paper Mills Serial 5½s, 1942	99	101
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	97	101
Minnesota Ontario Paper Serial 6s, 1945	97½	100
Murray Bay Paper Serial 6½s, 1947	102	105
Munissing Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1928-42	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswego Falls Corp. 6s, 1941	99	102
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 5½s, 1947	98	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Queen City Paper 7s, 1933	98	...
River Raisin Paper 6s, 1936	98	100
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Maurice Valley Corp. 6s, 1945	101	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	102
Smith (Howard) Paper Mills 7s, 1941	104	106
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1934	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	102
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	102	...
Waterway Paper Products 6s, 1931	100	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parson Pulp & Lumber 8s, 1938	20	25
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P. Pfd.	65	75
Brompton Pulp & Paper, 8% Pfd.	100	...
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Pfd.	92	97
Eastern Mfg. Co. 1st Pfd.	55	...
Great Northern Paper, Com.	75	78
Hammermill Paper, new 6% Pfd.	100	...
Hinde & Dauch, Com.	125	None Off
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	160	None Off.
Marathon Paper Mills, Com.	150	...
Mengel Co., Pfd.	102	104
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	195	...
Oxford Paper Co., Pfd.	108	111
Penobscot Chemical Fibre, Com.	80	...
Richardson Co., Com.	170	...
Sabin Robbins Paper Co., 8% Pfd.	105	110
St. Croix Paper	155	...
St. Regis Paper Co., 7% Cum. Pfd.	105	108
Westfield River Paper Co., 1st Pfd.	Wanted	None Off
West Virginia Pulp and Paper Company	55	57
West Virginia Pulp and Paper, Pfd.	100	101
Whitaker Paper, 7% Cum. Pfd.	105	None Off.

Webster Cog Belt Drives

The Webster Cog Belt Drive for the transmission of power also acts as a speed reducer. This drive consists of a grooved driving pulley in the grooves of which is run a belt of trapezodial cross section. Each pulley groove is shaped like the letter "V", either coming to a sharp point at the bottom or being cut off just abqve this point to give a small flat base to the groove.

The power transmitted is accomplished by the wedging action of the belt section between and against the sides of the pulley groove. The belt is designed to ride between the sides of the groove, but never to touch the bottom or base of the groove.

The three prime sections—compression, tension and neutral—are correctly placed in the belts through a patented built-up unitized construction, each belt is individually die-cut from the hole and templated, forming a raw edged, non-glazing contact service of great gripping power. The entire belt is made with one vulcanization, regardless of length, no sectional vulcanization being used.

The Webster Cog Belt Drives embrace the following advantages: smaller pulleys and extremely short center to center distances possible without the use of idlers, exact speed ratio maintained through greater gripping power, no slip, unaffected by dust or moisture laden atmosphere, absorb the shocks of power suddenly applied through the "seating" action of belts in grooves, no vibration transmitted between driving and driven machines.

F. C. Anderson Goes With Tucker Anthony Co.

CARTHAGE, N. Y., March 2, 1929.—Fred C. Anderson, for many years a prominent figure in papermaking circles of Northern New York, has become officially identified with the Watertown offices of the Tucker Anthony Company, general commission brokers and members of the New York and Boston stock exchanges. In his early youth he became associated with Minott Mitchell in the operation of the old Glover Paper Company at Brownville. Later he took a responsible position in the drafting department of the Bagley & Sewall Company which he held for several years prior to going with the Taggart Paper Company at Felt Mills. When the Spanish-American War broke out he enlisted in the navy and for more than two years he saw active service along the coast of China. On returning to Watertown he became connected with the St. Regis Paper Company during its earlier development period. From this company he went to Carthage with J. A. Outterson as superintendent in the Outterson mill. Later on he entered the paper mill engineering business remaining in that work until the outbreak of the World War when he enlisted in the Engineering Corps of the United States Army. Upon his return to this locality he re-entered the paper mill business. He has already assumed his new duties.